SUBSTITUTE SEQUENCE LISTING

<110> Bihain, Bernard
Bougueleret, Lydie
Yen-Potin, Frances

<120> LSR Receptor, Its Activity, Its Cloning and Its Application To The Diagnosis Prevention And/or Treatment of Obesity and Related Risks or Complications

<130> GENSET.035APC

<150> FR 97/10088
<151> 1997-08-06

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<151> 1998-04-22

<160> 41

<170> Patent.pm

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<211> 2097
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Met Ala Pro Ala Ala Gly
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gcg tgt gct ggg gcg cct gac tcc cac cca gct acc gtg gtc ttc gtg 283
Ala Cys Ala Gly Ala Pro Asp Ser His Pro Ala Thr Val Val Phe Val
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tgt ctc ttt ctc atc att ttc tgc cca gac cct gcc agt gcc atc cag 331
Cys Leu Phe Leu Ile Ile Phe Cys Pro Asp Pro Ala Ser Ala Ile Gln
25 30 35

gtg act gtg tct gac ccc tac cac gta gtg atc ctg ttc cag cca gtg 379
Val Thr Val Ser Asp Pro Tyr His Val Val Ile Leu Phe Gln Pro Val
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acc ctg ccc tgc acc tat cag atg agc aac act ctc aca gtc ccc atc 427
Thr Leu Pro Cys Thr Tyr Gln Met Ser Asn Thr Leu Thr Val Pro Ile
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gtg atc tgg aag tac aag tca ttc tgc cgg gac cgt att gcc gat gcc 475

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Val Ile Trp Lys Tyr Lys Ser Phe Cys Arg Asp Arg Ile Ala Asp Ala
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Phe Ser Pro Ala Ser Val Asp Asn Gln Leu Asn Ala Gln Leu Ala Ala
            90                  95                 100

ggc aac ccc ggc tac aac ccc tat gtg gag tgc cag gac agt gta cgc      571
Gly Asn Pro Gly Tyr Asn Pro Tyr Val Glu Cys Gln Asp Ser Val Arg
        105                 110                 115

act gtc agg gtg gtg gcc acc aaa cag ggc aat gcg gtg acc ctg gga      619
Thr Val Arg Val Val Ala Thr Lys Gln Gly Asn Ala Val Thr Leu Gly
    120                 125                 130

gac tac tac caa ggc agg agg atc acc ata aca gga aat gct gac ctg      667
Asp Tyr Tyr Gln Gly Arg Arg Ile Thr Ile Thr Gly Asn Ala Asp Leu
135                 140                 145                 150

acc ttc gag cag aca gcc tgg gga gac agt gga gtg tat tac tgc tct      715
Thr Phe Glu Gln Thr Ala Trp Gly Asp Ser Gly Val Tyr Tyr Cys Ser
                155                 160                 165

gtg gtc tcg gcc caa gat ctg gat gga aac aac gag gcg tac gca gag      763
Val Val Ser Ala Gln Asp Leu Asp Gly Asn Asn Glu Ala Tyr Ala Glu
            170                 175                 180

ctc atc gtc ctt ggc agg acc tca gag gcc cct gag ctc cta cct ggt      811
Leu Ile Val Leu Gly Arg Thr Ser Glu Ala Pro Glu Leu Leu Pro Gly
        185                 190                 195

ttt cgg gcg ggg ccc ttg gaa gat tgg ctc ttt gtg gtc gtg gtc tgc      859
Phe Arg Ala Gly Pro Leu Glu Asp Trp Leu Phe Val Val Val Val Cys
    200                 205                 210

ctg gcg agc ctc ctc ctc ttc ctc ctc ctg ggc atc tgc tgg tgc cag      907
Leu Ala Ser Leu Leu Leu Phe Leu Leu Leu Gly Ile Cys Trp Cys Gln
215                 220                 225                 230

tgc tgt cct cac acc tgc tgc tgc tat gtc cga tgt ccc tgc tgc cca      955
Cys Cys Pro His Thr Cys Cys Cys Tyr Val Arg Cys Pro Cys Cys Pro
                235                 240                 245

gac aag tgc tgt tgc cct gag gct ctt tat gct gct ggc aaa gca gcc     1003
Asp Lys Cys Cys Cys Pro Glu Ala Leu Tyr Ala Ala Gly Lys Ala Ala
            250                 255                 260

acc tca ggt gtc ccg agc atc tat gcc ccc agc atc tat acc cac ctc     1051
Thr Ser Gly Val Pro Ser Ile Tyr Ala Pro Ser Ile Tyr Thr His Leu
        265                 270                 275

tca cct gcc aag acc cca cca cct ccg cct gcc atg att ccc atg ggc     1099
Ser Pro Ala Lys Thr Pro Pro Pro Pro Pro Ala Met Ile Pro Met Gly
    280                 285                 290

cct ccc tat ggg tac cct gga gac ttt gac aga cat agc tca gtt ggt     1147
Pro Pro Tyr Gly Tyr Pro Gly Asp Phe Asp Arg His Ser Ser Val Gly
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295                 300                 305                 310

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Gly His Ser Ser Gln Val Pro Leu Leu Arg Asp Val Asp Gly Ser Val
                315                 320                 325

tct tca gaa gta cga agt ggc tac agg atc cag gct aac cag caa gat     1243
Ser Ser Glu Val Arg Ser Gly Tyr Arg Ile Gln Ala Asn Gln Gln Asp
            330                 335                 340

gac tcc atg agg gtc cta tac tat atg gag aaa gag cta gcc aac ttt     1291
Asp Ser Met Arg Val Leu Tyr Tyr Met Glu Lys Glu Leu Ala Asn Phe
        345                 350                 355

gac cct tcc cga cct ggc cct ccc aat ggc aga gtg gaa cgg gcc atg     1339
Asp Pro Ser Arg Pro Gly Pro Pro Asn Gly Arg Val Glu Arg Ala Met
    360                 365                 370

agt gaa gta acc tcc ctc cat gaa gat gac tgg cga tcg agg cct tcc     1387
Ser Glu Val Thr Ser Leu His Glu Asp Asp Trp Arg Ser Arg Pro Ser
375                 380                 385                 390

agg gct cct gcc ctc acc ccc atc agg gat gag gag tgg aat cgc cac     1435
Arg Ala Pro Ala Leu Thr Pro Ile Arg Asp Glu Glu Trp Asn Arg His
                395                 400                 405

tcc cca cag agt ccc aga aca tgg gag cag gaa ccc ctt caa gaa caa     1483
Ser Pro Gln Ser Pro Arg Thr Trp Glu Gln Glu Pro Leu Gln Glu Gln
            410                 415                 420

cca agg ggt ggt tgg ggg tct gga cgc cct cgg gcc cgc tct gtg gat     1531
Pro Arg Gly Gly Trp Gly Ser Gly Arg Pro Arg Ala Arg Ser Val Asp
        425                 430                 435

gct cta gat gat atc aac cgg cct ggc tcc act gaa tca gga cgg tct     1579
Ala Leu Asp Asp Ile Asn Arg Pro Gly Ser Thr Glu Ser Gly Arg Ser
    440                 445                 450

tct ccc cca agt agt gga cgg aga gga cgg gcc tat gca cct cca aga     1627
Ser Pro Pro Ser Ser Gly Arg Arg Gly Arg Ala Tyr Ala Pro Pro Arg
455                 460                 465                 470

agt cgc agc cgg gat gac ctc tat gac ccg gac gat cct agg gac ttg     1675
Ser Arg Ser Arg Asp Asp Leu Tyr Asp Pro Asp Asp Pro Arg Asp Leu
                475                 480                 485

cca cat tcc cga gat ccc cac tat tat gac gac atc agg tct aga gat     1723
Pro His Ser Arg Asp Pro His Tyr Tyr Asp Asp Ile Arg Ser Arg Asp
            490                 495                 500

cca cgt gct gac ccc aga tcc cgt cag cga tcc cga gat cct cgg gat     1771
Pro Arg Ala Asp Pro Arg Ser Arg Gln Arg Ser Arg Asp Pro Arg Asp
        505                 510                 515

gct ggc ttc agg tca agg gac cct cag tat gat ggg cga cta tta gaa     1819
Ala Gly Phe Arg Ser Arg Asp Pro Gln Tyr Asp Gly Arg Leu Leu Glu
    520                 525                 530
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gag gct tta aag aaa aag ggg tcg ggc gag aga agg agg gtt tac agg      1867
Glu Ala Leu Lys Lys Lys Gly Ser Gly Glu Arg Arg Arg Val Tyr Arg
535                 540                 545                 550

gag gaa gaa gag gaa gag gag ggc caa tac ccc cca gca cct cca cct      1915
Glu Glu Glu Glu Glu Glu Glu Gly Gln Tyr Pro Pro Ala Pro Pro Pro
                555                 560                 565

tac tca gag act gac tcg cag gcc tca cgg gag agg agg ctg aaa aag      1963
Tyr Ser Glu Thr Asp Ser Gln Ala Ser Arg Glu Arg Arg Leu Lys Lys
            570                 575                 580

aat ttg gcc ctg agt cgg gaa agt tta gtc gtc tga tccacgtttt           2009
Asn Leu Ala Leu Ser Arg Glu Ser Leu Val Val  *
        585                 590

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Pro Ala Ser Ala Ile Gln Val Thr Val Ser Asp Pro Tyr His Val Val
        35                  40                  45

Ile Leu Phe Gln Pro Val Thr Leu Pro Cys Thr Tyr Gln Met Ser Asn
    50                  55                  60

Thr Leu Thr Val Pro Ile Val Ile Trp Lys Tyr Lys Ser Phe Cys Arg
65                  70                  75                  80

Asp Arg Ile Ala Asp Ala Phe Ser Pro Ala Ser Val Asp Asn Gln Leu
                85                  90                  95

Asn Ala Gln Leu Ala Ala Gly Asn Pro Gly Tyr Asn Pro Tyr Val Glu
            100                 105                 110

Cys Gln Asp Ser Val Arg Thr Val Arg Val Val Ala Thr Lys Gln Gly
        115                 120                 125

Asn Ala Val Thr Leu Gly Asp Tyr Tyr Gln Gly Arg Arg Ile Thr Ile
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Thr Gly Asn Ala Asp Leu Thr Phe Glu Gln Thr Ala Trp Gly Asp Ser
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145 150 155 160

Gly Val Tyr Tyr Cys Ser Val Val Ser Ala Gln Asp Leu Asp Gly Asn
165 170 175

Asn Glu Ala Tyr Ala Glu Leu Ile Val Leu Gly Arg Thr Ser Glu Ala
180 185 190

Pro Glu Leu Leu Pro Gly Phe Arg Ala Gly Pro Leu Glu Asp Trp Leu
195 200 205

Phe Val Val Val Val Cys Leu Ala Ser Leu Leu Leu Phe Leu Leu Leu
210 215 220

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260 265 270

Ser Ile Tyr Thr His Leu Ser Pro Ala Lys Thr Pro Pro Pro Pro Pro
275 280 285

Ala Met Ile Pro Met Gly Pro Pro Tyr Gly Tyr Pro Gly Asp Phe Asp
290 295 300

Arg His Ser Ser Val Gly Gly His Ser Ser Gln Val Pro Leu Leu Arg
305 310 315 320

Asp Val Asp Gly Ser Val Ser Ser Glu Val Arg Ser Gly Tyr Arg Ile
325 330 335

Gln Ala Asn Gln Gln Asp Asp Ser Met Arg Val Leu Tyr Tyr Met Glu
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Lys Glu Leu Ala Asn Phe Asp Pro Ser Arg Pro Gly Pro Pro Asn Gly
355 360 365

Arg Val Glu Arg Ala Met Ser Glu Val Thr Ser Leu His Glu Asp Asp
370 375 380

Trp Arg Ser Arg Pro Ser Arg Ala Pro Ala Leu Thr Pro Ile Arg Asp
385 390 395 400

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405 410 415

Glu Pro Leu Gln Glu Gln Pro Arg Gly Gly Trp Gly Ser Gly Arg Pro
420 425 430

Arg Ala Arg Ser Val Asp Ala Leu Asp Asp Ile Asn Arg Pro Gly Ser
435 440 445

Thr Glu Ser Gly Arg Ser Ser Pro Pro Ser Ser Gly Arg Arg Gly Arg

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     450                 455                 460

Ala Tyr Ala Pro Pro Arg Ser Arg Ser Arg Asp Asp Leu Tyr Asp Pro
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Asp Asp Pro Arg Asp Leu Pro His Ser Arg Asp Pro His Tyr Tyr Asp
                485                 490                 495

Asp Ile Arg Ser Arg Asp Pro Arg Ala Asp Pro Arg Ser Arg Gln Arg
            500                 505                 510

Ser Arg Asp Pro Arg Asp Ala Gly Phe Arg Ser Arg Asp Pro Gln Tyr
        515                 520                 525

Asp Gly Arg Leu Leu Glu Glu Ala Leu Lys Lys Lys Gly Ser Gly Glu
    530                 535                 540

Arg Arg Arg Val Tyr Arg Glu Glu Glu Glu Glu Glu Glu Gly Gln Tyr
545                 550                 555                 560

Pro Pro Ala Pro Pro Pro Tyr Ser Glu Thr Asp Ser Gln Ala Ser Arg
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Glu Arg Arg Leu Lys Lys Asn Leu Ala Leu Ser Arg Glu Ser Leu Val
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agcacgcacc cttctccgcc ttggttctcg ccgcgccccc tactctcggg atacttggga 180

ggggacgcgc gggcaccgtc gctgctagac ggccgcg atg gcg ccg gcg gcc ggc 235
                                Met Ala Pro Ala Ala Gly
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gcg tgt gct ggg gcg cct gac tcc cac cca gct acc gtg gtc ttc gtg      283
Ala Cys Ala Gly Ala Pro Asp Ser His Pro Ala Thr Val Val Phe Val
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tgt ctc ttt ctc atc att ttc tgc cca gac cct gcc agt gcc atc cag      331
Cys Leu Phe Leu Ile Ile Phe Cys Pro Asp Pro Ala Ser Ala Ile Gln
        25                  30                  35

gtg act gtg tct gac ccc tac cac gta gtg atc ctg ttc cag cca gtg      379
Val Thr Val Ser Asp Pro Tyr His Val Val Ile Leu Phe Gln Pro Val
    40                  45                  50

acc ctg ccc tgc acc tat cag atg agc aac act ctc aca gtc ccc atc      427
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Thr Leu Pro Cys Thr Tyr Gln Met Ser Asn Thr Leu Thr Val Pro Ile
55                  60                  65                  70

gtg atc tgg aag tac aag tca ttc tgc cgg gac cgt att gcc gat gcc      475
Val Ile Trp Lys Tyr Lys Ser Phe Cys Arg Asp Arg Ile Ala Asp Ala
                75                  80                  85

ttc tct cct gcc agt gtg gac aac cag cta aat gcc cag ttg gca gct      523
Phe Ser Pro Ala Ser Val Asp Asn Gln Leu Asn Ala Gln Leu Ala Ala
            90                  95                  100

ggc aac ccc ggc tac aac ccc tat gtg gag tgc cag gac agt gta cgc      571
Gly Asn Pro Gly Tyr Asn Pro Tyr Val Glu Cys Gln Asp Ser Val Arg
        105                 110                 115

act gtc agg gtg gtg gcc acc aaa cag ggc aat gcg gtg acc ctg gga      619
Thr Val Arg Val Val Ala Thr Lys Gln Gly Asn Ala Val Thr Leu Gly
    120                 125                 130

gac tac tac caa ggc agg agg atc acc ata aca gga aat gct gac ctg      667
Asp Tyr Tyr Gln Gly Arg Arg Ile Thr Ile Thr Gly Asn Ala Asp Leu
135                 140                 145                 150

acc ttc gag cag aca gcc tgg gga gac agt gga gtg tat tac tgc tct      715
Thr Phe Glu Gln Thr Ala Trp Gly Asp Ser Gly Val Tyr Tyr Cys Ser
                155                 160                 165

gtg gtc tcg gcc caa gat ctg gat gga aac aac gag gcg tac gca gag      763
Val Val Ser Ala Gln Asp Leu Asp Gly Asn Asn Glu Ala Tyr Ala Glu
            170                 175                 180

ctc atc gtc ctt gat tgg ctc ttt gtg gtc gtg gtc tgc ctg gcg agc      811
Leu Ile Val Leu Asp Trp Leu Phe Val Val Val Val Cys Leu Ala Ser
        185                 190                 195

ctc ctc ctc ttc ctc ctc ctg ggc atc tgc tgg tgc cag tgc tgt cct      859
Leu Leu Leu Phe Leu Leu Leu Gly Ile Cys Trp Cys Gln Cys Cys Pro
    200                 205                 210

cac acc tgc tgc tgc tat gtc cga tgt ccc tgc tgc cca gac aag tgc      907
His Thr Cys Cys Cys Tyr Val Arg Cys Pro Cys Cys Pro Asp Lys Cys
215                 220                 225                 230

tgt tgc cct gag gct ctt tat gct gct ggc aaa gca gcc acc tca ggt      955
Cys Cys Pro Glu Ala Leu Tyr Ala Ala Gly Lys Ala Ala Thr Ser Gly
                235                 240                 245

gtc ccg agc atc tat gcc ccc agc atc tat acc cac ctc tca cct gcc     1003
Val Pro Ser Ile Tyr Ala Pro Ser Ile Tyr Thr His Leu Ser Pro Ala
            250                 255                 260

aag acc cca cca cct ccg cct gcc atg att ccc atg ggc cct ccc tat     1051
Lys Thr Pro Pro Pro Pro Pro Ala Met Ile Pro Met Gly Pro Pro Tyr
        265                 270                 275

ggg tac cct gga gac ttt gac aga cat agc tca gtt ggt ggc cac agc     1099
Gly Tyr Pro Gly Asp Phe Asp Arg His Ser Ser Val Gly Gly His Ser
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tcc caa gta ccc ctg ctg cgt gac gtg gat ggc agt gta tct tca gaa     1147
Ser Gln Val Pro Leu Leu Arg Asp Val Asp Gly Ser Val Ser Ser Glu
295                 300                 305                 310

gta cga agt ggc tac agg atc cag gct aac cag caa gat gac tcc atg     1195
Val Arg Ser Gly Tyr Arg Ile Gln Ala Asn Gln Gln Asp Asp Ser Met
                315                 320                 325

agg gtc cta tac tat atg gag aaa gag cta gcc aac ttt gac cct tcc     1243
Arg Val Leu Tyr Tyr Met Glu Lys Glu Leu Ala Asn Phe Asp Pro Ser
            330                 335                 340

cga cct ggc cct ccc aat ggc aga gtg gaa cgg gcc atg agt gaa gta     1291
Arg Pro Gly Pro Pro Asn Gly Arg Val Glu Arg Ala Met Ser Glu Val
        345                 350                 355

acc tcc ctc cat gaa gat gac tgg cga tcg agg cct tcc agg gct cct     1339
Thr Ser Leu His Glu Asp Asp Trp Arg Ser Arg Pro Ser Arg Ala Pro
    360                 365                 370

gcc ctc acc ccc atc agg gat gag gag tgg aat cgc cac tcc cca cag     1387
Ala Leu Thr Pro Ile Arg Asp Glu Glu Trp Asn Arg His Ser Pro Gln
375                 380                 385                 390

agt ccc aga aca tgg gag cag gaa ccc ctt caa gaa caa cca agg ggt     1435
Ser Pro Arg Thr Trp Glu Gln Glu Pro Leu Gln Glu Gln Pro Arg Gly
                395                 400                 405

ggt tgg ggg tct gga cgc cct cgg gcc cgc tct gtg gat gct cta gat     1483
Gly Trp Gly Ser Gly Arg Pro Arg Ala Arg Ser Val Asp Ala Leu Asp
            410                 415                 420

gat atc aac cgg cct ggc tcc act gaa tca gga cgg tct tct ccc cca     1531
Asp Ile Asn Arg Pro Gly Ser Thr Glu Ser Gly Arg Ser Ser Pro Pro
        425                 430                 435
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agt agt gga cgg aga gga cgg gcc tat gca cct cca aga agt cgc agc     1579
Ser Ser Gly Arg Arg Gly Arg Ala Tyr Ala Pro Pro Arg Ser Arg Ser
    440                 445                 450

cgg gat gac ctc tat gac ccg gac gat cct agg gac ttg cca cat tcc     1627
Arg Asp Asp Leu Tyr Asp Pro Asp Asp Pro Arg Asp Leu Pro His Ser
455                 460                 465                 470

cga gat ccc cac tat tat gac gac atc agg tct aga gat cca cgt gct     1675
Arg Asp Pro His Tyr Tyr Asp Asp Ile Arg Ser Arg Asp Pro Arg Ala
                475                 480                 485

gac ccc aga tcc cgt cag cga tcc cga gat cct cgg gat gct ggc ttc     1723
Asp Pro Arg Ser Arg Gln Arg Ser Arg Asp Pro Arg Asp Ala Gly Phe
            490                 495                 500

agg tca agg gac cct cag tat gat ggg cga cta tta gaa gag gct tta     1771
Arg Ser Arg Asp Pro Gln Tyr Asp Gly Arg Leu Leu Glu Glu Ala Leu
        505                 510                 515
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aag aaa aag ggg tcg ggc gag aga agg agg gtt tac agg gag gaa gaa     1819
Lys Lys Lys Gly Ser Gly Glu Arg Arg Arg Val Tyr Arg Glu Glu Glu
    520                 525                 530

gag gaa gag gag ggc caa tac ccc cca gca cct cca cct tac tca gag     1867
Glu Glu Glu Glu Gly Gln Tyr Pro Pro Ala Pro Pro Pro Tyr Ser Glu
535                 540                 545                 550

act gac tcg cag gcc tca cgg gag agg agg ctg aaa aag aat ttg gcc     1915
Thr Asp Ser Gln Ala Ser Arg Glu Arg Arg Leu Lys Lys Asn Leu Ala
                555                 560                 565

ctg agt cgg gaa agt tta gtc gtc tga tccacgtttt gtatgtagct           1962
Leu Ser Arg Glu Ser Leu Val Val  *
            570

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Pro Ala Ser Ala Ile Gln Val Thr Val Ser Asp Pro Tyr His Val Val
        35                  40                  45

Ile Leu Phe Gln Pro Val Thr Leu Pro Cys Thr Tyr Gln Met Ser Asn
    50                  55                  60

Thr Leu Thr Val Pro Ile Val Ile Trp Lys Tyr Lys Ser Phe Cys Arg
65                  70                  75                  80

Asp Arg Ile Ala Asp Ala Phe Ser Pro Ala Ser Val Asp Asn Gln Leu
                85                  90                  95

Asn Ala Gln Leu Ala Ala Gly Asn Pro Gly Tyr Asn Pro Tyr Val Glu
            100                 105                 110

Cys Gln Asp Ser Val Arg Thr Val Arg Val Val Ala Thr Lys Gln Gly
        115                 120                 125

Asn Ala Val Thr Leu Gly Asp Tyr Tyr Gln Gly Arg Arg Ile Thr Ile
    130                 135                 140

Thr Gly Asn Ala Asp Leu Thr Phe Glu Gln Thr Ala Trp Gly Asp Ser
145                 150                 155                 160
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Gly Val Tyr Tyr Cys Ser Val Val Ser Ala Gln Asp Leu Asp Gly Asn
                165                 170                 175

Asn Glu Ala Tyr Ala Glu Leu Ile Val Leu Asp Trp Leu Phe Val Val
            180                 185                 190

Val Val Cys Leu Ala Ser Leu Leu Leu Phe Leu Leu Leu Gly Ile Cys
        195                 200                 205

Trp Cys Gln Cys Cys Pro His Thr Cys Cys Cys Tyr Val Arg Cys Pro
    210                 215                 220

Cys Cys Pro Asp Lys Cys Cys Cys Pro Glu Ala Leu Tyr Ala Ala Gly
225                 230                 235                 240

Lys Ala Ala Thr Ser Gly Val Pro Ser Ile Tyr Ala Pro Ser Ile Tyr
                245                 250                 255

Thr His Leu Ser Pro Ala Lys Thr Pro Pro Pro Pro Pro Ala Met Ile
            260                 265                 270

Pro Met Gly Pro Pro Tyr Gly Tyr Pro Gly Asp Phe Asp Arg His Ser
        275                 280                 285

Ser Val Gly Gly His Ser Ser Gln Val Pro Leu Leu Arg Asp Val Asp
    290                 295                 300

Gly Ser Val Ser Ser Glu Val Arg Ser Gly Tyr Arg Ile Gln Ala Asn
305                 310                 315                 320

Gln Gln Asp Asp Ser Met Arg Val Leu Tyr Tyr Met Glu Lys Glu Leu
                325                 330                 335

Ala Asn Phe Asp Pro Ser Arg Pro Gly Pro Pro Asn Gly Arg Val Glu
            340                 345                 350

Arg Ala Met Ser Glu Val Thr Ser Leu His Glu Asp Asp Trp Arg Ser
        355                 360                 365

Arg Pro Ser Arg Ala Pro Ala Leu Thr Pro Ile Arg Asp Glu Glu Trp
    370                 375                 380

Asn Arg His Ser Pro Gln Ser Pro Arg Thr Trp Glu Gln Glu Pro Leu
385                 390                 395                 400

Gln Glu Gln Pro Arg Gly Gly Trp Gly Ser Gly Arg Pro Arg Ala Arg
                405                 410                 415

Ser Val Asp Ala Leu Asp Asp Ile Asn Arg Pro Gly Ser Thr Glu Ser
            420                 425                 430

Gly Arg Ser Ser Pro Pro Ser Ser Gly Arg Arg Gly Arg Ala Tyr Ala
        435                 440                 445

Pro Pro Arg Ser Arg Ser Arg Asp Asp Leu Tyr Asp Pro Asp Asp Pro
    450                 455                 460
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Arg Asp Leu Pro His Ser Arg Asp Pro His Tyr Tyr Asp Asp Ile Arg
465                 470                 475                 480

Ser Arg Asp Pro Arg Ala Asp Pro Arg Ser Arg Gln Arg Ser Arg Asp
                485                 490                 495

Pro Arg Asp Ala Gly Phe Arg Ser Arg Asp Pro Gln Tyr Asp Gly Arg
            500                 505                 510

Leu Leu Glu Glu Ala Leu Lys Lys Lys Gly Ser Gly Glu Arg Arg Arg
        515                 520                 525

Val Tyr Arg Glu Glu Glu Glu Glu Glu Glu Gly Gln Tyr Pro Pro Ala
    530                 535                 540

Pro Pro Pro Tyr Ser Glu Thr Asp Ser Gln Ala Ser Arg Glu Arg Arg
545                 550                 555                 560

Leu Lys Lys Asn Leu Ala Leu Ser Arg Glu Ser Leu Val Val
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ggggacgcgc gggcaccgtc gctgctagac ggccgcg atg gcg ccg gcg gcc ggc 235
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gcg tgt gct ggg gcg cct gac tcc cac cca gct acc gtg gtc ttc gtg 283
Ala Cys Ala Gly Ala Pro Asp Ser His Pro Ala Thr Val Val Phe Val
            10   15   20

tgt ctc ttt ctc atc att ttc tgc cca gac cct gcc agt gcc atc cag 331
Cys Leu Phe Leu Ile Ile Phe Cys Pro Asp Pro Ala Ser Ala Ile Gln
        25   30   35

gtg act gtg tct gac ccc tac cac gta gtg atc ctg ttc cag cca gtg 379
Val Thr Val Ser Asp Pro Tyr His Val Val Ile Leu Phe Gln Pro Val
    40   45   50

acc ctg ccc tgc acc tat cag atg agc aac act ctc aca gtc ccc atc 427
Thr Leu Pro Cys Thr Tyr Gln Met Ser Asn Thr Leu Thr Val Pro Ile
55   60   65   70

gtg atc tgg aag tac aag tca ttc tgc cgg gac cgt att gcc gat gcc 475
Val Ile Trp Lys Tyr Lys Ser Phe Cys Arg Asp Arg Ile Ala Asp Ala

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                  75                  80                  85

ttc tct cct gcc agt gtg gac aac cag cta aat gcc cag ttg gca gct      523
Phe Ser Pro Ala Ser Val Asp Asn Gln Leu Asn Ala Gln Leu Ala Ala
            90                  95                 100

ggc aac ccc ggc tac aac ccc tat gtg gag tgc cag gac agt gta cgc      571
Gly Asn Pro Gly Tyr Asn Pro Tyr Val Glu Cys Gln Asp Ser Val Arg
        105                 110                 115

act gtc agg gtg gtg gcc acc aaa cag ggc aat gcg gtg acc ctg gga      619
Thr Val Arg Val Val Ala Thr Lys Gln Gly Asn Ala Val Thr Leu Gly
    120                 125                 130

gac tac tac caa ggc agg agg atc acc ata aca gga aat gct gac ctg      667
Asp Tyr Tyr Gln Gly Arg Arg Ile Thr Ile Thr Gly Asn Ala Asp Leu
135                 140                 145                 150

acc ttc gag cag aca gcc tgg gga gac agt gga gtg tat tac tgc tct      715
Thr Phe Glu Gln Thr Ala Trp Gly Asp Ser Gly Val Tyr Tyr Cys Ser
                155                 160                 165

gtg gtc tcg gcc caa gat ctg gat gga aac aac gag gcg tac gca gag      763
Val Val Ser Ala Gln Asp Leu Asp Gly Asn Asn Glu Ala Tyr Ala Glu
            170                 175                 180

ctc atc gtc ctt gtt tat gct gct ggc aaa gca gcc acc tca ggt gtc      811
Leu Ile Val Leu Val Tyr Ala Ala Gly Lys Ala Ala Thr Ser Gly Val
        185                 190                 195

ccg agc atc tat gcc ccc agc atc tat acc cac ctc tca cct gcc aag      859
Pro Ser Ile Tyr Ala Pro Ser Ile Tyr Thr His Leu Ser Pro Ala Lys
    200                 205                 210

acc cca cca cct ccg cct gcc atg att ccc atg ggc cct ccc tat ggg      907
Thr Pro Pro Pro Pro Pro Ala Met Ile Pro Met Gly Pro Pro Tyr Gly
215                 220                 225                 230

tac cct gga gac ttt gac aga cat agc tca gtt ggt ggc cac agc tcc      955
Tyr Pro Gly Asp Phe Asp Arg His Ser Ser Val Gly Gly His Ser Ser
                235                 240                 245

caa gta ccc ctg ctg cgt gac gtg gat ggc agt gta tct tca gaa gta     1003
Gln Val Pro Leu Leu Arg Asp Val Asp Gly Ser Val Ser Ser Glu Val
            250                 255                 260

cga agt ggc tac agg atc cag gct aac cag caa gat gac tcc atg agg     1051
Arg Ser Gly Tyr Arg Ile Gln Ala Asn Gln Gln Asp Asp Ser Met Arg
        265                 270                 275

gtc cta tac tat atg gag aaa gag cta gcc aac ttt gac cct tcc cga     1099
Val Leu Tyr Tyr Met Glu Lys Glu Leu Ala Asn Phe Asp Pro Ser Arg
    280                 285                 290

cct ggc cct ccc aat ggc aga gtg gaa cgg gcc atg agt gaa gta acc     1147
Pro Gly Pro Pro Asn Gly Arg Val Glu Arg Ala Met Ser Glu Val Thr
295                 300                 305                 310
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tcc ctc cat gaa gat gac tgg cga tcg agg cct tcc agg gct cct gcc     1195
Ser Leu His Glu Asp Asp Trp Arg Ser Arg Pro Ser Arg Ala Pro Ala
                315                 320                 325

ctc acc ccc atc agg gat gag gag tgg aat cgc cac tcc cca cag agt     1243
Leu Thr Pro Ile Arg Asp Glu Glu Trp Asn Arg His Ser Pro Gln Ser
            330                 335                 340

ccc aga aca tgg gag cag gaa ccc ctt caa gaa caa cca agg ggt ggt     1291
Pro Arg Thr Trp Glu Gln Glu Pro Leu Gln Glu Gln Pro Arg Gly Gly
        345                 350                 355

tgg ggg tct gga cgc cct cgg gcc cgc tct gtg gat gct cta gat gat     1339
Trp Gly Ser Gly Arg Pro Arg Ala Arg Ser Val Asp Ala Leu Asp Asp
    360                 365                 370

atc aac cgg cct ggc tcc act gaa tca gga cgg tct tct ccc cca agt     1387
Ile Asn Arg Pro Gly Ser Thr Glu Ser Gly Arg Ser Ser Pro Pro Ser
375                 380                 385                 390

agt gga cgg aga gga cgg gcc tat gca cct cca aga agt cgc agc cgg     1435
Ser Gly Arg Arg Gly Arg Ala Tyr Ala Pro Pro Arg Ser Arg Ser Arg
                395                 400                 405

gat gac ctc tat gac ccg gac gat cct agg gac ttg cca cat tcc cga     1483
Asp Asp Leu Tyr Asp Pro Asp Asp Pro Arg Asp Leu Pro His Ser Arg
            410                 415                 420

gat ccc cac tat tat gac gac atc agg tct aga gat cca cgt gct gac     1531
Asp Pro His Tyr Tyr Asp Asp Ile Arg Ser Arg Asp Pro Arg Ala Asp
        425                 430                 435


ccc aga tcc cgt cag cga tcc cga gat cct cgg gat gct ggc ttc agg     1579
Pro Arg Ser Arg Gln Arg Ser Arg Asp Pro Arg Asp Ala Gly Phe Arg
    440                 445                 450

tca agg gac cct cag tat gat ggg cga cta tta gaa gag gct tta aag     1627
Ser Arg Asp Pro Gln Tyr Asp Gly Arg Leu Leu Glu Glu Ala Leu Lys
455                 460                 465                 470

aaa aag ggg tcg ggc gag aga agg agg gtt tac agg gag gaa gaa gag     1675
Lys Lys Gly Ser Gly Glu Arg Arg Arg Val Tyr Arg Glu Glu Glu Glu
                475                 480                 485

gaa gag gag ggc caa tac ccc cca gca cct cca cct tac tca gag act     1723
Glu Glu Glu Gly Gln Tyr Pro Pro Ala Pro Pro Pro Tyr Ser Glu Thr
            490                 495                 500

gac tcg cag gcc tca cgg gag agg agg ctg aaa aag aat ttg gcc ctg     1771
Asp Ser Gln Ala Ser Arg Glu Arg Arg Leu Lys Lys Asn Leu Ala Leu
        505                 510                 515

agt cgg gaa agt tta gtc gtc tga tccacgtttt gtatgtagct tttgtacttt    1825
Ser Arg Glu Ser Leu Val Val  *
```

520 525

ttttttaatt ggaatcaata ttgatgaaac ttcaagccta ataaaatgtc taatcacaaa 1885

aaaaaaaa 1893

<210> 6
<211> 525
<212> PRT
<213> Rattus norvegicus

<400> 6

Met	Ala	Pro	Ala	Ala	Gly	Ala	Cys	Ala	Gly	Ala	Pro	Asp	Ser	His	Pro
1				5				10					15		
Ala	Thr	Val	Val	Phe	Val	Cys	Leu	Phe	Leu	Ile	Ile	Phe	Cys	Pro	Asp
			20					25					30		
Pro	Ala	Ser	Ala	Ile	Gln	Val	Thr	Val	Ser	Asp	Pro	Tyr	His	Val	Val
		35					40					45			
Ile	Leu	Phe	Gln	Pro	Val	Thr	Leu	Pro	Cys	Thr	Tyr	Gln	Met	Ser	Asn
	50					55					60				
Thr	Leu	Thr	Val	Pro	Ile	Val	Ile	Trp	Lys	Tyr	Lys	Ser	Phe	Cys	Arg
65					70					75					80
Asp	Arg	Ile	Ala	Asp	Ala	Phe	Ser	Pro	Ala	Ser	Val	Asp	Asn	Gln	Leu
				85					90					95	
Asn	Ala	Gln	Leu	Ala	Ala	Gly	Asn	Pro	Gly	Tyr	Asn	Pro	Tyr	Val	Glu
			100					105					110		
Cys	Gln	Asp	Ser	Val	Arg	Thr	Val	Arg	Val	Val	Ala	Thr	Lys	Gln	Gly
		115					120					125			
Asn	Ala	Val	Thr	Leu	Gly	Asp	Tyr	Tyr	Gln	Gly	Arg	Arg	Ile	Thr	Ile
	130					135					140				
Thr	Gly	Asn	Ala	Asp	Leu	Thr	Phe	Glu	Gln	Thr	Ala	Trp	Gly	Asp	Ser
145					150					155					160
Gly	Val	Tyr	Tyr	Cys	Ser	Val	Val	Ser	Ala	Gln	Asp	Leu	Asp	Gly	Asn
				165					170					175	
Asn	Glu	Ala	Tyr	Ala	Glu	Leu	Ile	Val	Leu	Val	Tyr	Ala	Ala	Gly	Lys
			180					185					190		
Ala	Ala	Thr	Ser	Gly	Val	Pro	Ser	Ile	Tyr	Ala	Pro	Ser	Ile	Tyr	Thr
		195					200					205			
His	Leu	Ser	Pro	Ala	Lys	Thr	Pro	Pro	Pro	Pro	Pro	Ala	Met	Ile	Pro
	210					215					220				
Met	Gly	Pro	Pro	Tyr	Gly	Tyr	Pro	Gly	Asp	Phe	Asp	Arg	His	Ser	Ser

225 230 235 240

Val Gly Gly His Ser Ser Gln Val Pro Leu Leu Arg Asp Val Asp Gly
245 250 255

Ser Val Ser Ser Glu Val Arg Ser Gly Tyr Arg Ile Gln Ala Asn Gln
260 265 270

Gln Asp Asp Ser Met Arg Val Leu Tyr Tyr Met Glu Lys Glu Leu Ala
275 280 285

Asn Phe Asp Pro Ser Arg Pro Gly Pro Pro Asn Gly Arg Val Glu Arg
290 295 300

Ala Met Ser Glu Val Thr Ser Leu His Glu Asp Asp Trp Arg Ser Arg
305 310 315 320

Pro Ser Arg Ala Pro Ala Leu Thr Pro Ile Arg Asp Glu Glu Trp Asn
325 330 335

Arg His Ser Pro Gln Ser Pro Arg Thr Trp Glu Gln Glu Pro Leu Gln
340 345 350

Glu Gln Pro Arg Gly Gly Trp Gly Ser Gly Arg Pro Arg Ala Arg Ser
355 360 365

Val Asp Ala Leu Asp Asp Ile Asn Arg Pro Gly Ser Thr Glu Ser Gly
370 375 380

Arg Ser Ser Pro Pro Ser Ser Gly Arg Arg Gly Arg Ala Tyr Ala Pro
385 390 395 400

Pro Arg Ser Arg Ser Arg Asp Asp Leu Tyr Asp Pro Asp Asp Pro Arg
405 410 415

Asp Leu Pro His Ser Arg Asp Pro His Tyr Tyr Asp Asp Ile Arg Ser
420 425 430

Arg Asp Pro Arg Ala Asp Pro Arg Ser Arg Gln Arg Ser Arg Asp Pro
435 440 445

Arg Asp Ala Gly Phe Arg Ser Arg Asp Pro Gln Tyr Asp Gly Arg Leu
450 455 460

Leu Glu Glu Ala Leu Lys Lys Lys Gly Ser Gly Glu Arg Arg Arg Val
465 470 475 480

Tyr Arg Glu Glu Glu Glu Glu Glu Glu Gly Gln Tyr Pro Pro Ala Pro
485 490 495

Pro Pro Tyr Ser Glu Thr Asp Ser Gln Ala Ser Arg Glu Arg Arg Leu
500 505 510

Lys Lys Asn Leu Ala Leu Ser Arg Glu Ser Leu Val Val
515 520 525

<210> 7
<211> 2158
<212> DNA
<213> Homo sapiens

<220>

<221> Misc_Feature
<222> 1259..1261
<223> Potential splicing site AAG

<221> Misc_Feature
<222> 1657
<223> Potential insertion of a AGG

<400> 7
tggagtgtgg ctcggaggac cgcggcgggt caagcacctt tctcccccat atctgaaagc 60

atgcccttg tccacgtcgt ttacgctcat taaaacttcc aga atg caa cag gac 115
Met Gln Gln Asp
1

gga ctt gga gta ggg aca agg aac gga agt ggg aag ggg agg agc gtg 163
Gly Leu Gly Val Gly Thr Arg Asn Gly Ser Gly Lys Gly Arg Ser Val
5 10 15 20

cac ccc tcc tgg cct tgg tgc gcg ccg cgc ccc cta agg tac ttt gga 211
His Pro Ser Trp Pro Trp Cys Ala Pro Arg Pro Leu Arg Tyr Phe Gly
25 30 35

agg gac gcg cgg gcc aga cgc gcc cag acg gcc gcg atg gcg ctg ttg 259
Arg Asp Ala Arg Ala Arg Arg Ala Gln Thr Ala Ala Met Ala Leu Leu
40 45 50

gcc ggc ggg ctc tcc aga ggg ctg ggc tcc cac ccg gcc gcc gca ggc 307
Ala Gly Gly Leu Ser Arg Gly Leu Gly Ser His Pro Ala Ala Ala Gly
55 60 65

cgg gac gcg gtc gtc ttc gtg tgg ctt ctg ctt agc acc tgg tgc aca 355
Arg Asp Ala Val Val Phe Val Trp Leu Leu Leu Ser Thr Trp Cys Thr
70 75 80

gct cct gcc agg gcc atc cag gtg acc gtg tcc aac ccc tac cac gtg 403
Ala Pro Ala Arg Ala Ile Gln Val Thr Val Ser Asn Pro Tyr His Val
85 90 95 100

gtg atc ctc ttc cag cct gtg acc ctg ccc tgt acc tac cag atg acc 451
Val Ile Leu Phe Gln Pro Val Thr Leu Pro Cys Thr Tyr Gln Met Thr
105 110 115

tcg acc ccc acg caa ccc atc gtc atc tgg aag tac aag tct ttc tgc 499
Ser Thr Pro Thr Gln Pro Ile Val Ile Trp Lys Tyr Lys Ser Phe Cys
120 125 130

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cgg gac cgc atc gcc gat gcc ttc tcc ccg gcc agc gtc gac aac cag      547
Arg Asp Arg Ile Ala Asp Ala Phe Ser Pro Ala Ser Val Asp Asn Gln
        135                 140                 145

ctc aat gcc cag ctg gca gcc ggg aac cca ggc tac aac ccc tac gtt      595
Leu Asn Ala Gln Leu Ala Ala Gly Asn Pro Gly Tyr Asn Pro Tyr Val
    150                 155                 160

gag tgc cag gac agc gtg cgc acc gtc agg gtc gtg gcc acc aag cag      643
Glu Cys Gln Asp Ser Val Arg Thr Val Arg Val Val Ala Thr Lys Gln
165                 170                 175                 180

ggc aac gct gtg acc ctg gga gat tac tac cag ggc cgg agg att acc      691
Gly Asn Ala Val Thr Leu Gly Asp Tyr Tyr Gln Gly Arg Arg Ile Thr
                185                 190                 195

atc acc gga aat gct gac ctg acc ttt gac cag acg gcg tgg ggg gac      739
Ile Thr Gly Asn Ala Asp Leu Thr Phe Asp Gln Thr Ala Trp Gly Asp
            200                 205                 210

agt ggt gtg tat tac tgc tcc gtg gtc tca gcc cag gac ctc cag ggg      787
Ser Gly Val Tyr Tyr Cys Ser Val Val Ser Ala Gln Asp Leu Gln Gly
        215                 220                 225

aac aat gag gcc tac gca gag ctc atc gtc ctt ggg agg acc tca ggg      835
Asn Asn Glu Ala Tyr Ala Glu Leu Ile Val Leu Gly Arg Thr Ser Gly
    230                 235                 240

gtg gct gag ctc tta cct ggt ttt cag gcg ggg ccc ata gaa gac tgg      883
Val Ala Glu Leu Leu Pro Gly Phe Gln Ala Gly Pro Ile Glu Asp Trp
245                 250                 255                 260

ctc ttc gtg gtt gtg gta tgc ctg gct gcc ttc ctc atc ttc ctc ctc      931
Leu Phe Val Val Val Val Cys Leu Ala Ala Phe Leu Ile Phe Leu Leu
                265                 270                 275

ctg ggc atc tgc tgg tgc cag tgc tgc ccg cac act tgc tgc tgc tac      979
Leu Gly Ile Cys Trp Cys Gln Cys Cys Pro His Thr Cys Cys Cys Tyr
            280                 285                 290

gtc agg tgc ccc tgc tgc cca gac aag tgc tgc tgc ccc gag gcc ctg     1027
Val Arg Cys Pro Cys Cys Pro Asp Lys Cys Cys Cys Pro Glu Ala Leu
        295                 300                 305

tat gcc gcc ggc aaa gca gcc acc tca ggt gtt ccc agc att tat gcc     1075
Tyr Ala Ala Gly Lys Ala Ala Thr Ser Gly Val Pro Ser Ile Tyr Ala
    310                 315                 320

ccc agc acc tat gcc cac ctg tct ccc gcc aag acc cca ccc cca cca     1123
Pro Ser Thr Tyr Ala His Leu Ser Pro Ala Lys Thr Pro Pro Pro Pro
325                 330                 335                 340

gct atg att ccc atg ggc cct gcc tac aac ggg tac cct gga gga tac     1171
Ala Met Ile Pro Met Gly Pro Ala Tyr Asn Gly Tyr Pro Gly Gly Tyr
                345                 350                 355

cct gga gac gtt gac agg agt agc tca gct ggt ggc caa ggc tcc tat     1219
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Pro Gly Asp Val Asp Arg Ser Ser Ser Ala Gly Gly Gln Gly Ser Tyr
            360                 365                 370

gta ccc ctg ctt cgg gac acg gac agc agt gtg gcc tct gaa gtc cgc     1267
Val Pro Leu Leu Arg Asp Thr Asp Ser Ser Val Ala Ser Glu Val Arg
        375                 380                 385

agt ggc tac agg att cag gcc agc cag cag gac gac tcc atg cgg gtc     1315
Ser Gly Tyr Arg Ile Gln Ala Ser Gln Gln Asp Asp Ser Met Arg Val
    390                 395                 400

ctg tac tac atg gag aag gag ctg gcc aac ttc gac cct tct cga cct     1363
Leu Tyr Tyr Met Glu Lys Glu Leu Ala Asn Phe Asp Pro Ser Arg Pro
405                 410                 415                 420

ggc ccc ccc agt ggc cgt gtg gag cgg gcc atg agt gaa gtc acc tcc     1411
Gly Pro Pro Ser Gly Arg Val Glu Arg Ala Met Ser Glu Val Thr Ser
                425                 430                 435

ctc cac gag gac gac tgg cga tct cgg cct tcc cgg ggc cct gcc ctc     1459
Leu His Glu Asp Asp Trp Arg Ser Arg Pro Ser Arg Gly Pro Ala Leu
            440                 445                 450

acc ccg atc cgg gat gag gag tgg ggt ggc cac tcc ccc cgg agt ccc     1507
Thr Pro Ile Arg Asp Glu Glu Trp Gly Gly His Ser Pro Arg Ser Pro
        455                 460                 465

agg gga tgg gac cag gag ccc gcc agg gag cag gca ggc ggg ggc tgg     1555
Arg Gly Trp Asp Gln Glu Pro Ala Arg Glu Gln Ala Gly Gly Gly Trp
    470                 475                 480

cgg gcc agg cgg ccc cgg gcc cgc tcc gtg gac gcc ctg gac gac ctc     1603
Arg Ala Arg Arg Pro Arg Ala Arg Ser Val Asp Ala Leu Asp Asp Leu
485                 490                 495                 500

acc ccg ccg agc acc gcc gag tca ggg agc agg tct ccc acg agt aat     1651
Thr Pro Pro Ser Thr Ala Glu Ser Gly Ser Arg Ser Pro Thr Ser Asn
                505                 510                 515

ggt ggg aga agc cgg gcc tac atg ccc ccg cgg agc cgc agc cgg gac     1699
Gly Gly Arg Ser Arg Ala Tyr Met Pro Pro Arg Ser Arg Ser Arg Asp
            520                 525                 530

gac ctc tat gac caa gac gac tcg agg gac ttc cca cgc tcc cgg gac     1747
Asp Leu Tyr Asp Gln Asp Asp Ser Arg Asp Phe Pro Arg Ser Arg Asp
        535                 540                 545

ccc cac tac gac gac ttc agg tct cgg gag cgc cct cct gcc gac ccc     1795
Pro His Tyr Asp Asp Phe Arg Ser Arg Glu Arg Pro Pro Ala Asp Pro
    550                 555                 560

agg tcc cac cac cac cgt acc cgg gac cct cgg gac aac ggc tcc agg     1843
Arg Ser His His His Arg Thr Arg Asp Pro Arg Asp Asn Gly Ser Arg
565                 570                 575                 580
```

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tcc ggg gac ctc ccc tat gat ggg cgg cta ctg gag gag gct gtg agg      1891
Ser Gly Asp Leu Pro Tyr Asp Gly Arg Leu Leu Glu Glu Ala Val Arg
                585                 590                 595

aag aag ggg tcg gag gag agg agg aga ccc cac aag gag gag gag gaa      1939
Lys Lys Gly Ser Glu Glu Arg Arg Arg Pro His Lys Glu Glu Glu Glu
            600                 605                 610

gag gcc tac tac ccg ccc gcg ccg ccc ccg tac tcg gag acc gac tcg      1987
Glu Ala Tyr Tyr Pro Pro Ala Pro Pro Pro Tyr Ser Glu Thr Asp Ser
        615                 620                 625

cag gcg tcc cga gag cgc agg ctc aag aag aac ttg gcc ctg agt cgg      2035
Gln Ala Ser Arg Glu Arg Arg Leu Lys Lys Asn Leu Ala Leu Ser Arg
    630                 635                 640

gaa agt tta gtc gtc tga tctgacgttt tctacgtagc ttttgtattt             2083
Glu Ser Leu Val Val  *
645

ttttttttaa tttgaaggaa cactgatgaa gccctgccat acccctcccg agtctaataa    2143

aacgtataat cacaa                                                    2158
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<210> 8
<211> 649
<212> PRT
<213> Homo sapiens

<220>

<221> Misc_Feature
<222> 386
<223> Potential deletion of a Glu

<221> Misc_Feature
<222> 518
<223> Potential insertion of a Arg

<400> 8

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Met Gln Gln Asp Gly Leu Gly Val Gly Thr Arg Asn Gly Ser Gly Lys
1               5                  10                  15

Gly Arg Ser Val His Pro Ser Trp Pro Trp Cys Ala Pro Arg Pro Leu
            20                  25                  30

Arg Tyr Phe Gly Arg Asp Ala Arg Ala Arg Arg Ala Gln Thr Ala Ala
        35                  40                  45

Met Ala Leu Leu Ala Gly Gly Leu Ser Arg Gly Leu Gly Ser His Pro
    50                  55                  60

Ala Ala Ala Gly Arg Asp Ala Val Val Phe Val Trp Leu Leu Leu Ser
65                  70                  75                  80
```

Thr Trp Cys Thr Ala Pro Ala Arg Ala Ile Gln Val Thr Val Ser Asn
85 90 95

Pro Tyr His Val Val Ile Leu Phe Gln Pro Val Thr Leu Pro Cys Thr
100 105 110

Tyr Gln Met Thr Ser Thr Pro Thr Gln Pro Ile Val Ile Trp Lys Tyr
115 120 125

Lys Ser Phe Cys Arg Asp Arg Ile Ala Asp Ala Phe Ser Pro Ala Ser
130 135 140

Val Asp Asn Gln Leu Asn Ala Gln Leu Ala Ala Gly Asn Pro Gly Tyr
145 150 155 160

Asn Pro Tyr Val Glu Cys Gln Asp Ser Val Arg Thr Val Arg Val Val
165 170 175

Ala Thr Lys Gln Gly Asn Ala Val Thr Leu Gly Asp Tyr Tyr Gln Gly
180 185 190

Arg Arg Ile Thr Ile Thr Gly Asn Ala Asp Leu Thr Phe Asp Gln Thr
195 200 205

Ala Trp Gly Asp Ser Gly Val Tyr Tyr Cys Ser Val Val Ser Ala Gln
210 215 220

Asp Leu Gln Gly Asn Asn Glu Ala Tyr Ala Glu Leu Ile Val Leu Gly
225 230 235 240

Arg Thr Ser Gly Val Ala Glu Leu Leu Pro Gly Phe Gln Ala Gly Pro
245 250 255

Ile Glu Asp Trp Leu Phe Val Val Val Val Cys Leu Ala Ala Phe Leu
260 265 270

Ile Phe Leu Leu Leu Gly Ile Cys Trp Cys Gln Cys Cys Pro His Thr
275 280 285

Cys Cys Cys Tyr Val Arg Cys Pro Cys Cys Pro Asp Lys Cys Cys Cys
290 295 300

Pro Glu Ala Leu Tyr Ala Ala Gly Lys Ala Ala Thr Ser Gly Val Pro
305 310 315 320

Ser Ile Tyr Ala Pro Ser Thr Tyr Ala His Leu Ser Pro Ala Lys Thr
325 330 335

Pro Pro Pro Pro Ala Met Ile Pro Met Gly Pro Ala Tyr Asn Gly Tyr
340 345 350

Pro Gly Gly Tyr Pro Gly Asp Val Asp Arg Ser Ser Ser Ala Gly Gly
355 360 365

Gln Gly Ser Tyr Val Pro Leu Leu Arg Asp Thr Asp Ser Ser Val Ala
370 375 380

Ser Glu Val Arg Ser Gly Tyr Arg Ile Gln Ala Ser Gln Gln Asp Asp
385 390 395 400

Ser Met Arg Val Leu Tyr Tyr Met Glu Lys Glu Leu Ala Asn Phe Asp
405 410 415

Pro Ser Arg Pro Gly Pro Pro Ser Gly Arg Val Glu Arg Ala Met Ser
420 425 430

Glu Val Thr Ser Leu His Glu Asp Asp Trp Arg Ser Arg Pro Ser Arg
435 440 445

Gly Pro Ala Leu Thr Pro Ile Arg Asp Glu Glu Trp Gly Gly His Ser
450 455 460

Pro Arg Ser Pro Arg Gly Trp Asp Gln Glu Pro Ala Arg Glu Gln Ala
465 470 475 480

Gly Gly Gly Trp Arg Ala Arg Arg Pro Arg Ala Arg Ser Val Asp Ala
485 490 495

Leu Asp Asp Leu Thr Pro Pro Ser Thr Ala Glu Ser Gly Ser Arg Ser
500 505 510

Pro Thr Ser Asn Gly Gly Arg Ser Arg Ala Tyr Met Pro Pro Arg Ser
515 520 525

Arg Ser Arg Asp Asp Leu Tyr Asp Gln Asp Asp Ser Arg Asp Phe Pro
530 535 540

Arg Ser Arg Asp Pro His Tyr Asp Asp Phe Arg Ser Arg Glu Arg Pro
545 550 555 560

Pro Ala Asp Pro Arg Ser His His His Arg Thr Arg Asp Pro Arg Asp
565 570 575

Asn Gly Ser Arg Ser Gly Asp Leu Pro Tyr Asp Gly Arg Leu Leu Glu
580 585 590

Glu Ala Val Arg Lys Lys Gly Ser Glu Glu Arg Arg Arg Pro His Lys
595 600 605

Glu Glu Glu Glu Glu Ala Tyr Tyr Pro Pro Ala Pro Pro Pro Tyr Ser
610 615 620

Glu Thr Asp Ser Gln Ala Ser Arg Glu Arg Arg Leu Lys Lys Asn Leu
625 630 635 640

Ala Leu Ser Arg Glu Ser Leu Val Val
645

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<211> 2101
<212> DNA
<213> Homo sapiens

<400> 9
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atgcccttg tccacgtcgt ttacgctcat taaaacttcc aga atg caa cag gac 115
Met Gln Gln Asp
1

gga ctt gga gta ggg aca agg aac gga agt ggg aag ggg agg agc gtg 163
Gly Leu Gly Val Gly Thr Arg Asn Gly Ser Gly Lys Gly Arg Ser Val
5 10 15 20

cac ccc tcc tgg cct tgg tgc gcg ccg cgc ccc cta agg tac ttt gga 211
His Pro Ser Trp Pro Trp Cys Ala Pro Arg Pro Leu Arg Tyr Phe Gly
25 30 35

agg gac gcg cgg gcc aga cgc gcc cag acg gcc gcg atg gcg ctg ttg 259
Arg Asp Ala Arg Ala Arg Arg Ala Gln Thr Ala Ala Met Ala Leu Leu
40 45 50

gcc ggc ggg ctc tcc aga ggg ctg ggc tcc cac ccg gcc gcc gca ggc 307
Ala Gly Gly Leu Ser Arg Gly Leu Gly Ser His Pro Ala Ala Ala Gly
55 60 65

cgg gac gcg gtc gtc ttc gtg tgg ctt ctg ctt agc acc tgg tgc aca 355
Arg Asp Ala Val Val Phe Val Trp Leu Leu Leu Ser Thr Trp Cys Thr
70 75 80

gct cct gcc agg gcc atc cag gtg acc gtg tcc aac ccc tac cac gtg 403
Ala Pro Ala Arg Ala Ile Gln Val Thr Val Ser Asn Pro Tyr His Val
85 90 95 100

gtg atc ctc ttc cag cct gtg acc ctg ccc tgt acc tac cag atg acc 451
Val Ile Leu Phe Gln Pro Val Thr Leu Pro Cys Thr Tyr Gln Met Thr
105 110 115

tcg acc ccc acg caa ccc atc gtc atc tgg aag tac aag tct ttc tgc 499
Ser Thr Pro Thr Gln Pro Ile Val Ile Trp Lys Tyr Lys Ser Phe Cys
120 125 130

cgg gac cgc atc gcc gat gcc ttc tcc ccg gcc agc gtc gac aac cag 547
Arg Asp Arg Ile Ala Asp Ala Phe Ser Pro Ala Ser Val Asp Asn Gln
135 140 145

ctc aat gcc cag ctg gca gcc ggg aac cca ggc tac aac ccc tac gtt 595
Leu Asn Ala Gln Leu Ala Ala Gly Asn Pro Gly Tyr Asn Pro Tyr Val
150 155 160

gag tgc cag gac agc gtg cgc acc gtc agg gtc gtg gcc acc aag cag 643
Glu Cys Gln Asp Ser Val Arg Thr Val Arg Val Val Ala Thr Lys Gln
165 170 175 180

ggc aac gct gtg acc ctg gga gat tac tac cag ggc cgg agg att acc 691
Gly Asn Ala Val Thr Leu Gly Asp Tyr Tyr Gln Gly Arg Arg Ile Thr
185 190 195

atc acc gga aat gct gac ctg acc ttt gac cag acg gcg tgg ggg gac 739

```
Ile Thr Gly Asn Ala Asp Leu Thr Phe Asp Gln Thr Ala Trp Gly Asp
            200                 205                 210

agt ggt gtg tat tac tgc tcc gtg gtc tca gcc cag gac ctc cag ggg      787
Ser Gly Val Tyr Tyr Cys Ser Val Val Ser Ala Gln Asp Leu Gln Gly
        215                 220                 225

aac aat gag gcc tac gca gag ctc atc gtc ctt gac tgg ctc ttc gtg      835
Asn Asn Glu Ala Tyr Ala Glu Leu Ile Val Leu Asp Trp Leu Phe Val
    230                 235                 240

gtt gtg gta tgc ctg gct gcc ttc ctc atc ttc ctc ctc ctg ggc atc      883
Val Val Val Cys Leu Ala Ala Phe Leu Ile Phe Leu Leu Leu Gly Ile
245                 250                 255                 260

tgc tgg tgc cag tgc tgc ccg cac act tgc tgc tgc tac gtc agg tgc      931
Cys Trp Cys Gln Cys Cys Pro His Thr Cys Cys Cys Tyr Val Arg Cys
                265                 270                 275

ccc tgc tgc cca gac aag tgc tgc tgc ccc gag gcc ctg tat gcc gcc      979
Pro Cys Cys Pro Asp Lys Cys Cys Cys Pro Glu Ala Leu Tyr Ala Ala
            280                 285                 290

ggc aaa gca gcc acc tca ggt gtt ccc agc att tat gcc ccc agc acc     1027
Gly Lys Ala Ala Thr Ser Gly Val Pro Ser Ile Tyr Ala Pro Ser Thr
        295                 300                 305

tat gcc cac ctg tct ccc gcc aag acc cca ccc cca cca gct atg att     1075
Tyr Ala His Leu Ser Pro Ala Lys Thr Pro Pro Pro Pro Ala Met Ile
    310                 315                 320

ccc atg ggc cct gcc tac aac ggg tac cct gga gga tac cct gga gac     1123
Pro Met Gly Pro Ala Tyr Asn Gly Tyr Pro Gly Gly Tyr Pro Gly Asp
325                 330                 335                 340

gtt gac agg agt agc tca gct ggt ggc caa ggc tcc tat gta ccc ctg     1171
Val Asp Arg Ser Ser Ser Ala Gly Gly Gln Gly Ser Tyr Val Pro Leu
                345                 350                 355

ctt cgg gac acg gac agc agt gtg gcc tct gaa gtc cgc agt ggc tac     1219
Leu Arg Asp Thr Asp Ser Ser Val Ala Ser Glu Val Arg Ser Gly Tyr
            360                 365                 370

agg att cag gcc agc cag cag gac gac tcc atg cgg gtc ctg tac tac     1267
Arg Ile Gln Ala Ser Gln Gln Asp Asp Ser Met Arg Val Leu Tyr Tyr
        375                 380                 385

atg gag aag gag ctg gcc aac ttc gac cct tct cga cct ggc ccc ccc     1315
Met Glu Lys Glu Leu Ala Asn Phe Asp Pro Ser Arg Pro Gly Pro Pro
    390                 395                 400

agt ggc cgt gtg gag cgg gcc atg agt gaa gtc acc tcc ctc cac gag     1363
Ser Gly Arg Val Glu Arg Ala Met Ser Glu Val Thr Ser Leu His Glu
405                 410                 415                 420
```

```
gac gac tgg cga tct cgg cct tcc cgg ggc cct gcc ctc acc ccg atc      1411
Asp Asp Trp Arg Ser Arg Pro Ser Arg Gly Pro Ala Leu Thr Pro Ile
                425                 430                 435

cgg gat gag gag tgg ggt ggc cac tcc ccc cgg agt ccc agg gga tgg      1459
Arg Asp Glu Glu Trp Gly Gly His Ser Pro Arg Ser Pro Arg Gly Trp
            440                 445                 450

gac cag gag ccc gcc agg gag cag gca ggc ggg ggc tgg cgg gcc agg      1507
Asp Gln Glu Pro Ala Arg Glu Gln Ala Gly Gly Gly Trp Arg Ala Arg
        455                 460                 465

cgg ccc cgg gcc cgc tcc gtg gac gcc ctg gac gac ctc acc ccg ccg      1555
Arg Pro Arg Ala Arg Ser Val Asp Ala Leu Asp Asp Leu Thr Pro Pro
    470                 475                 480

agc acc gcc gag tca ggg agc agg tct ccc acg agt aat ggt ggg aga      1603
Ser Thr Ala Glu Ser Gly Ser Arg Ser Pro Thr Ser Asn Gly Gly Arg
485                 490                 495                 500

agc cgg gcc tac atg ccc ccg cgg agc cgc agc cgg gac gac ctc tat      1651
Ser Arg Ala Tyr Met Pro Pro Arg Ser Arg Ser Arg Asp Asp Leu Tyr
                505                 510                 515

gac caa gac gac tcg agg gac ttc cca cgc tcc cgg gac ccc cac tac      1699
Asp Gln Asp Asp Ser Arg Asp Phe Pro Arg Ser Arg Asp Pro His Tyr
            520                 525                 530

gac gac ttc agg tct cgg gag cgc cct cct gcc gac ccc agg tcc cac      1747
Asp Asp Phe Arg Ser Arg Glu Arg Pro Pro Ala Asp Pro Arg Ser His
        535                 540                 545

cac cac cgt acc cgg gac cct cgg gac aac ggc tcc agg tcc ggg gac      1795
His His Arg Thr Arg Asp Pro Arg Asp Asn Gly Ser Arg Ser Gly Asp
    550                 555                 560

ctc ccc tat gat ggg cgg cta ctg gag gag gct gtg agg aag aag ggg      1843
Leu Pro Tyr Asp Gly Arg Leu Leu Glu Glu Ala Val Arg Lys Lys Gly
565                 570                 575                 580

tcg gag gag agg agg aga ccc cac aag gag gag gag gaa gag gcc tac      1891
Ser Glu Glu Arg Arg Arg Pro His Lys Glu Glu Glu Glu Glu Ala Tyr
                585                 590                 595

tac ccg ccc gcg ccg ccc ccg tac tcg gag acc gac tcg cag gcg tcc      1939
Tyr Pro Pro Ala Pro Pro Pro Tyr Ser Glu Thr Asp Ser Gln Ala Ser
            600                 605                 610

cga gag cgc agg ctc aag aag aac ttg gcc ctg agt cgg gaa agt tta      1987
Arg Glu Arg Arg Leu Lys Lys Asn Leu Ala Leu Ser Arg Glu Ser Leu
        615                 620                 625

gtc gtc tga tctgacgttt tctacgtagc ttttgtattt tttttttaa               2036
Val Val  *
    630

tttgaaggaa cactgatgaa gccctgccat acccctcccg agtctaataa aacgtataat    2096
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cacaa 2101

<210> 10
<211> 630
<212> PRT
<213> Homo sapiens

<400> 10

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Met Gln Gln Asp Gly Leu Gly Val Gly Thr Arg Asn Gly Ser Gly Lys
1               5                  10                  15

Gly Arg Ser Val His Pro Ser Trp Pro Trp Cys Ala Pro Arg Pro Leu
            20                  25                  30

Arg Tyr Phe Gly Arg Asp Ala Arg Ala Arg Arg Ala Gln Thr Ala Ala
        35                  40                  45

Met Ala Leu Leu Ala Gly Gly Leu Ser Arg Gly Leu Gly Ser His Pro
    50                  55                  60

Ala Ala Ala Gly Arg Asp Ala Val Val Phe Val Trp Leu Leu Leu Ser
65                  70                  75                  80

Thr Trp Cys Thr Ala Pro Ala Arg Ala Ile Gln Val Thr Val Ser Asn
                85                  90                  95

Pro Tyr His Val Val Ile Leu Phe Gln Pro Val Thr Leu Pro Cys Thr
            100                 105                 110

Tyr Gln Met Thr Ser Thr Pro Thr Gln Pro Ile Val Ile Trp Lys Tyr
        115                 120                 125

Lys Ser Phe Cys Arg Asp Arg Ile Ala Asp Ala Phe Ser Pro Ala Ser
    130                 135                 140

Val Asp Asn Gln Leu Asn Ala Gln Leu Ala Ala Gly Asn Pro Gly Tyr
145                 150                 155                 160

Asn Pro Tyr Val Glu Cys Gln Asp Ser Val Arg Thr Val Arg Val Val
                165                 170                 175

Ala Thr Lys Gln Gly Asn Ala Val Thr Leu Gly Asp Tyr Tyr Gln Gly
            180                 185                 190

Arg Arg Ile Thr Ile Thr Gly Asn Ala Asp Leu Thr Phe Asp Gln Thr
        195                 200                 205

Ala Trp Gly Asp Ser Gly Val Tyr Tyr Cys Ser Val Val Ser Ala Gln
    210                 215                 220

Asp Leu Gln Gly Asn Asn Glu Ala Tyr Ala Glu Leu Ile Val Leu Asp
225                 230                 235                 240

Trp Leu Phe Val Val Val Val Cys Leu Ala Ala Phe Leu Ile Phe Leu
```

245 250 255

Leu Leu Gly Ile Cys Trp Cys Gln Cys Cys Pro His Thr Cys Cys Cys
260 265 270

Tyr Val Arg Cys Pro Cys Cys Pro Asp Lys Cys Cys Cys Pro Glu Ala
275 280 285

Leu Tyr Ala Ala Gly Lys Ala Ala Thr Ser Gly Val Pro Ser Ile Tyr
290 295 300

Ala Pro Ser Thr Tyr Ala His Leu Ser Pro Ala Lys Thr Pro Pro Pro
305 310 315 320

Pro Ala Met Ile Pro Met Gly Pro Ala Tyr Asn Gly Tyr Pro Gly Gly
325 330 335

Tyr Pro Gly Asp Val Asp Arg Ser Ser Ser Ala Gly Gly Gln Gly Ser
340 345 350

Tyr Val Pro Leu Leu Arg Asp Thr Asp Ser Ser Val Ala Ser Glu Val
355 360 365

Arg Ser Gly Tyr Arg Ile Gln Ala Ser Gln Gln Asp Asp Ser Met Arg
370 375 380

Val Leu Tyr Tyr Met Glu Lys Glu Leu Ala Asn Phe Asp Pro Ser Arg
385 390 395 400

Pro Gly Pro Pro Ser Gly Arg Val Glu Arg Ala Met Ser Glu Val Thr
405 410 415

Ser Leu His Glu Asp Asp Trp Arg Ser Arg Pro Ser Arg Gly Pro Ala
420 425 430

Leu Thr Pro Ile Arg Asp Glu Glu Trp Gly Gly His Ser Pro Arg Ser
435 440 445

Pro Arg Gly Trp Asp Gln Glu Pro Ala Arg Glu Gln Ala Gly Gly Gly
450 455 460

Trp Arg Ala Arg Arg Pro Arg Ala Arg Ser Val Asp Ala Leu Asp Asp
465 470 475 480

Leu Thr Pro Pro Ser Thr Ala Glu Ser Gly Ser Arg Ser Pro Thr Ser
485 490 495

Asn Gly Gly Arg Ser Arg Ala Tyr Met Pro Pro Arg Ser Arg Ser Arg
500 505 510

Asp Asp Leu Tyr Asp Gln Asp Asp Ser Arg Asp Phe Pro Arg Ser Arg
515 520 525

Asp Pro His Tyr Asp Asp Phe Arg Ser Arg Glu Arg Pro Pro Ala Asp
530 535 540

Pro Arg Ser His His His Arg Thr Arg Asp Pro Arg Asp Asn Gly Ser

545 550 555 560

Arg Ser Gly Asp Leu Pro Tyr Asp Gly Arg Leu Leu Glu Glu Ala Val
565 570 575

Arg Lys Lys Gly Ser Glu Glu Arg Arg Arg Pro His Lys Glu Glu Glu
580 585 590

Glu Glu Ala Tyr Tyr Pro Pro Ala Pro Pro Pro Tyr Ser Glu Thr Asp
595 600 605

Ser Gln Ala Ser Arg Glu Arg Arg Leu Lys Lys Asn Leu Ala Leu Ser
610 615 620

Arg Glu Ser Leu Val Val
625 630

<210> 11
<211> 1954
<212> DNA
<213> Homo sapiens

<400> 11
tggagtgtgg ctcggaggac cgcggcgggt caagcacctt tctcccccat atctgaaagc 60

atgcccttg tccacgtcgt ttacgctcat taaaacttcc aga atg caa cag gac 115
Met Gln Gln Asp
1

gga ctt gga gta ggg aca agg aac gga agt ggg aag ggg agg agc gtg 163
Gly Leu Gly Val Gly Thr Arg Asn Gly Ser Gly Lys Gly Arg Ser Val
5 10 15 20

cac ccc tcc tgg cct tgg tgc gcg ccg cgc ccc cta agg tac ttt gga 211
His Pro Ser Trp Pro Trp Cys Ala Pro Arg Pro Leu Arg Tyr Phe Gly
25 30 35

agg gac gcg cgg gcc aga cgc gcc cag acg gcc gcg atg gcg ctg ttg 259
Arg Asp Ala Arg Ala Arg Arg Ala Gln Thr Ala Ala Met Ala Leu Leu
40 45 50

gcc ggc ggg ctc tcc aga ggg ctg ggc tcc cac ccg gcc gcc gca ggc 307
Ala Gly Gly Leu Ser Arg Gly Leu Gly Ser His Pro Ala Ala Ala Gly
55 60 65

cgg gac gcg gtc gtc ttc gtg tgg ctt ctg ctt agc acc tgg tgc aca 355
Arg Asp Ala Val Val Phe Val Trp Leu Leu Leu Ser Thr Trp Cys Thr
70 75 80

gct cct gcc agg gcc atc cag gtg acc gtg tcc aac ccc tac cac gtg 403
Ala Pro Ala Arg Ala Ile Gln Val Thr Val Ser Asn Pro Tyr His Val
85 90 95 100

gtg atc ctc ttc cag cct gtg acc ctg ccc tgt acc tac cag atg acc 451

```
Val Ile Leu Phe Gln Pro Val Thr Leu Pro Cys Thr Tyr Gln Met Thr
                105                 110                 115

tcg acc ccc acg caa ccc atc gtc atc tgg aag tac aag tct ttc tgc      499
Ser Thr Pro Thr Gln Pro Ile Val Ile Trp Lys Tyr Lys Ser Phe Cys
            120                 125                 130

cgg gac cgc atc gcc gat gcc ttc tcc ccg gcc agc gtc gac aac cag      547
Arg Asp Arg Ile Ala Asp Ala Phe Ser Pro Ala Ser Val Asp Asn Gln
        135                 140                 145

ctc aat gcc cag ctg gca gcc ggg aac cca ggc tac aac ccc tac gtt      595
Leu Asn Ala Gln Leu Ala Ala Gly Asn Pro Gly Tyr Asn Pro Tyr Val
    150                 155                 160

gag tgc cag gac agc gtg cgc acc gtc agg gtc gtg gcc acc aag cag      643
Glu Cys Gln Asp Ser Val Arg Thr Val Arg Val Val Ala Thr Lys Gln
165                 170                 175                 180

ggc aac gct gtg acc ctg gga gat tac tac cag ggc cgg agg att acc      691
Gly Asn Ala Val Thr Leu Gly Asp Tyr Tyr Gln Gly Arg Arg Ile Thr
                185                 190                 195

atc acc gga aat gct gac ctg acc ttt gac cag acg gcg tgg ggg gac      739
Ile Thr Gly Asn Ala Asp Leu Thr Phe Asp Gln Thr Ala Trp Gly Asp
            200                 205                 210

agt ggt gtg tat tac tgc tcc gtg gtc tca gcc cag gac ctc cag ggg      787
Ser Gly Val Tyr Tyr Cys Ser Val Val Ser Ala Gln Asp Leu Gln Gly
        215                 220                 225

aac aat gag gcc tac gca gag ctc atc gtc ctt gtg tat gcc gcc ggc      835
Asn Asn Glu Ala Tyr Ala Glu Leu Ile Val Leu Val Tyr Ala Ala Gly
    230                 235                 240

aaa gca gcc acc tca ggt gtt ccc agc att tat gcc ccc agc acc tat      883
Lys Ala Ala Thr Ser Gly Val Pro Ser Ile Tyr Ala Pro Ser Thr Tyr
245                 250                 255                 260

gcc cac ctg tct ccc gcc aag acc cca ccc cca cca gct atg att ccc      931
Ala His Leu Ser Pro Ala Lys Thr Pro Pro Pro Pro Ala Met Ile Pro
                265                 270                 275

atg ggc cct gcc tac aac ggg tac cct gga gga tac cct gga gac gtt      979
Met Gly Pro Ala Tyr Asn Gly Tyr Pro Gly Gly Tyr Pro Gly Asp Val
            280                 285                 290

gac agg agt agc tca gct ggt ggc caa ggc tcc tat gta ccc ctg ctt     1027
Asp Arg Ser Ser Ser Ala Gly Gly Gln Gly Ser Tyr Val Pro Leu Leu
        295                 300                 305

cgg gac acg gac agc agt gtg gcc tct gaa gtc cgc agt ggc tac agg     1075
Arg Asp Thr Asp Ser Ser Val Ala Ser Glu Val Arg Ser Gly Tyr Arg
    310                 315                 320

att cag gcc agc cag cag gac gac tcc atg cgg gtc ctg tac tac atg     1123
Ile Gln Ala Ser Gln Gln Asp Asp Ser Met Arg Val Leu Tyr Tyr Met
```

```
325                 330                 335                 340

gag aag gag ctg gcc aac ttc gac cct tct cga cct ggc ccc ccc agt     1171
Glu Lys Glu Leu Ala Asn Phe Asp Pro Ser Arg Pro Gly Pro Pro Ser
                345                 350                 355

ggc cgt gtg gag cgg gcc atg agt gaa gtc acc tcc ctc cac gag gac     1219
Gly Arg Val Glu Arg Ala Met Ser Glu Val Thr Ser Leu His Glu Asp
            360                 365                 370

gac tgg cga tct cgg cct tcc cgg ggc cct gcc ctc acc ccg atc cgg     1267
Asp Trp Arg Ser Arg Pro Ser Arg Gly Pro Ala Leu Thr Pro Ile Arg
        375                 380                 385

gat gag gag tgg ggt ggc cac tcc ccc cgg agt ccc agg gga tgg gac     1315
Asp Glu Glu Trp Gly Gly His Ser Pro Arg Ser Pro Arg Gly Trp Asp
    390                 395                 400

cag gag ccc gcc agg gag cag gca ggc ggg ggc tgg cgg gcc agg cgg     1363
Gln Glu Pro Ala Arg Glu Gln Ala Gly Gly Gly Trp Arg Ala Arg Arg
405                 410                 415                 420

ccc cgg gcc cgc tcc gtg gac gcc ctg gac gac ctc acc ccg ccg agc     1411
Pro Arg Ala Arg Ser Val Asp Ala Leu Asp Asp Leu Thr Pro Pro Ser
                425                 430                 435

acc gcc gag tca ggg agc agg tct ccc acg agt aat ggt ggg aga agc     1459
Thr Ala Glu Ser Gly Ser Arg Ser Pro Thr Ser Asn Gly Gly Arg Ser
            440                 445                 450

cgg gcc tac atg ccc ccg cgg agc cgc agc cgg gac gac ctc tat gac     1507
Arg Ala Tyr Met Pro Pro Arg Ser Arg Ser Arg Asp Asp Leu Tyr Asp
        455                 460                 465

caa gac gac tcg agg gac ttc cca cgc tcc cgg gac ccc cac tac gac     1555
Gln Asp Asp Ser Arg Asp Phe Pro Arg Ser Arg Asp Pro His Tyr Asp
    470                 475                 480

gac ttc agg tct cgg gag cgc cct cct gcc gac ccc agg tcc cac cac     1603
Asp Phe Arg Ser Arg Glu Arg Pro Pro Ala Asp Pro Arg Ser His His
485                 490                 495                 500

cac cgt acc cgg gac cct cgg gac aac ggc tcc agg tcc ggg gac ctc     1651
His Arg Thr Arg Asp Pro Arg Asp Asn Gly Ser Arg Ser Gly Asp Leu
                505                 510                 515

ccc tat gat ggg cgg cta ctg gag gag gct gtg agg aag aag ggg tcg     1699
Pro Tyr Asp Gly Arg Leu Leu Glu Glu Ala Val Arg Lys Lys Gly Ser
            520                 525                 530

gag gag agg agg aga ccc cac aag gag gag gag gaa gag gcc tac tac     1747
Glu Glu Arg Arg Arg Pro His Lys Glu Glu Glu Glu Glu Ala Tyr Tyr
        535                 540                 545

ccg ccc gcg ccg ccc ccg tac tcg gag acc gac tcg cag gcg tcc cga     1795
Pro Pro Ala Pro Pro Pro Tyr Ser Glu Thr Asp Ser Gln Ala Ser Arg
    550                 555                 560
```

```
gag cgc agg ctc aag aag aac ttg gcc ctg agt cgg gaa agt tta gtc     1843
Glu Arg Arg Leu Lys Lys Asn Leu Ala Leu Ser Arg Glu Ser Leu Val
565                 570                 575                 580

gtc tga tctgacgttt tctacgtagc ttttgtattt ttttttttaa tttgaaggaa     1899
Val  *

cactgatgaa gccctgccat acccctcccg agtctaataa aacgtataat cacaa       1954
```

<210> 12
<211> 581
<212> PRT
<213> Homo sapiens

<400> 12

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Met Gln Gln Asp Gly Leu Gly Val Gly Thr Arg Asn Gly Ser Gly Lys
1               5                   10                  15

Gly Arg Ser Val His Pro Ser Trp Pro Trp Cys Ala Pro Arg Pro Leu
            20                  25                  30

Arg Tyr Phe Gly Arg Asp Ala Arg Ala Arg Arg Ala Gln Thr Ala Ala
        35                  40                  45

Met Ala Leu Leu Ala Gly Gly Leu Ser Arg Gly Leu Gly Ser His Pro
    50                  55                  60

Ala Ala Ala Gly Arg Asp Ala Val Val Phe Val Trp Leu Leu Leu Ser
65                  70                  75                  80

Thr Trp Cys Thr Ala Pro Ala Arg Ala Ile Gln Val Thr Val Ser Asn
                85                  90                  95

Pro Tyr His Val Val Ile Leu Phe Gln Pro Val Thr Leu Pro Cys Thr
            100                 105                 110

Tyr Gln Met Thr Ser Thr Pro Thr Gln Pro Ile Val Ile Trp Lys Tyr
        115                 120                 125

Lys Ser Phe Cys Arg Asp Arg Ile Ala Asp Ala Phe Ser Pro Ala Ser
    130                 135                 140

Val Asp Asn Gln Leu Asn Ala Gln Leu Ala Ala Gly Asn Pro Gly Tyr
145                 150                 155                 160

Asn Pro Tyr Val Glu Cys Gln Asp Ser Val Arg Thr Val Arg Val Val
                165                 170                 175

Ala Thr Lys Gln Gly Asn Ala Val Thr Leu Gly Asp Tyr Tyr Gln Gly
            180                 185                 190

Arg Arg Ile Thr Ile Thr Gly Asn Ala Asp Leu Thr Phe Asp Gln Thr
        195                 200                 205
```

Ala Trp Gly Asp Ser Gly Val Tyr Tyr Cys Ser Val Val Ser Ala Gln
210 215 220

Asp Leu Gln Gly Asn Asn Glu Ala Tyr Ala Glu Leu Ile Val Leu Val
225 230 235 240

Tyr Ala Ala Gly Lys Ala Ala Thr Ser Gly Val Pro Ser Ile Tyr Ala
245 250 255

Pro Ser Thr Tyr Ala His Leu Ser Pro Ala Lys Thr Pro Pro Pro Pro
260 265 270

Ala Met Ile Pro Met Gly Pro Ala Tyr Asn Gly Tyr Pro Gly Gly Tyr
275 280 285

Pro Gly Asp Val Asp Arg Ser Ser Ser Ala Gly Gly Gln Gly Ser Tyr
290 295 300

Val Pro Leu Leu Arg Asp Thr Asp Ser Ser Val Ala Ser Glu Val Arg
305 310 315 320

Ser Gly Tyr Arg Ile Gln Ala Ser Gln Gln Asp Asp Ser Met Arg Val
325 330 335

Leu Tyr Tyr Met Glu Lys Glu Leu Ala Asn Phe Asp Pro Ser Arg Pro
340 345 350

Gly Pro Pro Ser Gly Arg Val Glu Arg Ala Met Ser Glu Val Thr Ser
355 360 365

Leu His Glu Asp Asp Trp Arg Ser Arg Pro Ser Arg Gly Pro Ala Leu
370 375 380

Thr Pro Ile Arg Asp Glu Glu Trp Gly Gly His Ser Pro Arg Ser Pro
385 390 395 400

Arg Gly Trp Asp Gln Glu Pro Ala Arg Glu Gln Ala Gly Gly Gly Trp
405 410 415

Arg Ala Arg Arg Pro Arg Ala Arg Ser Val Asp Ala Leu Asp Asp Leu
420 425 430

Thr Pro Pro Ser Thr Ala Glu Ser Gly Ser Arg Ser Pro Thr Ser Asn
435 440 445

Gly Gly Arg Ser Arg Ala Tyr Met Pro Pro Arg Ser Arg Ser Arg Asp
450 455 460

Asp Leu Tyr Asp Gln Asp Asp Ser Arg Asp Phe Pro Arg Ser Arg Asp
465 470 475 480

Pro His Tyr Asp Asp Phe Arg Ser Arg Glu Arg Pro Pro Ala Asp Pro
485 490 495

Arg Ser His His His Arg Thr Arg Asp Pro Arg Asp Asn Gly Ser Arg
500 505 510

```
Ser Gly Asp Leu Pro Tyr Asp Gly Arg Leu Leu Glu Glu Ala Val Arg
        515                 520                 525

Lys Lys Gly Ser Glu Glu Arg Arg Arg Pro His Lys Glu Glu Glu Glu
    530                 535                 540

Glu Ala Tyr Tyr Pro Pro Ala Pro Pro Pro Tyr Ser Glu Thr Asp Ser
545                 550                 555                 560

Gln Ala Ser Arg Glu Arg Arg Leu Lys Lys Asn Leu Ala Leu Ser Arg
                565                 570                 575

Glu Ser Leu Val Val
            580
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<210> 13
<211> 1886
<212> DNA
<213> Mus musculus

<400> 13

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gcaccgtcgc tgctagacgg ccgcg atg gcg ccg gcg gcc agc gcg tgt gct       52
                              Met Ala Pro Ala Ala Ser Ala Cys Ala
                              1               5

ggg gcg cct ggc tcc cac ccg gcc acc acg atc ttc gtg tgt ctt ttt      100
Gly Ala Pro Gly Ser His Pro Ala Thr Thr Ile Phe Val Cys Leu Phe
10                  15                  20                  25

ctc atc att tac tgc cca gac cgt gcc agt gcc atc cag gtg acc gtg      148
Leu Ile Ile Tyr Cys Pro Asp Arg Ala Ser Ala Ile Gln Val Thr Val
                30                  35                  40

cct gac ccc tac cac gta gtg atc ctg ttc cag cca gtg aca cta cac      196
Pro Asp Pro Tyr His Val Val Ile Leu Phe Gln Pro Val Thr Leu His
            45                  50                  55

tgc acc tac cag atg agc aat acc ctc aca gcc cct atc gtg atc tgg      244
Cys Thr Tyr Gln Met Ser Asn Thr Leu Thr Ala Pro Ile Val Ile Trp
        60                  65                  70

aag tat aag tcg ttc tgt cgg gac cgt gtt gcc gac gcc ttc tcc cct      292
Lys Tyr Lys Ser Phe Cys Arg Asp Arg Val Ala Asp Ala Phe Ser Pro
    75                  80                  85

gcc agc gtg gac aac cag ctc aac gcc cag ctg gcg gct ggc aac ccc      340
Ala Ser Val Asp Asn Gln Leu Asn Ala Gln Leu Ala Ala Gly Asn Pro
90                  95                  100                 105

ggc tac aac ccc tat gtg gag tgc cag gac agc gta cgc act gtc agg      388
Gly Tyr Asn Pro Tyr Val Glu Cys Gln Asp Ser Val Arg Thr Val Arg
                110                 115                 120
```

```
gtg gtg gcc acc aaa cag ggc aat gct gtg acc ctg gga gac tac tac      436
Val Val Ala Thr Lys Gln Gly Asn Ala Val Thr Leu Gly Asp Tyr Tyr
            125                 130                 135

cag ggc agg aga atc acc atc aca gga aat gct ggc ctg acc ttc gag      484
Gln Gly Arg Arg Ile Thr Ile Thr Gly Asn Ala Gly Leu Thr Phe Glu
        140                 145                 150

cag acg gcc tgg gga gac agt gga gtg tat tac tgc tcc gtg gtc tca      532
Gln Thr Ala Trp Gly Asp Ser Gly Val Tyr Tyr Cys Ser Val Val Ser
    155                 160                 165

gcc caa gat ctg gat ggg aac aac gag gcg tac gca gag ctc att gtc      580
Ala Gln Asp Leu Asp Gly Asn Asn Glu Ala Tyr Ala Glu Leu Ile Val
170                 175                 180                 185

ctt ggc agg acc tca gaa gcc cct gag ctc cta cct ggt ttt cgg gcg      628
Leu Gly Arg Thr Ser Glu Ala Pro Glu Leu Leu Pro Gly Phe Arg Ala
                190                 195                 200

ggg ccc ttg gaa gat tgg ctc ttt gtg gtc gtg gtc tgc ctg gca agc      676
Gly Pro Leu Glu Asp Trp Leu Phe Val Val Val Val Cys Leu Ala Ser
            205                 210                 215

ctc ctc ttc ttc ctc ctc ctg ggc atc tgc tgg tgc cag tgc tgt ccc      724
Leu Leu Phe Phe Leu Leu Leu Gly Ile Cys Trp Cys Gln Cys Cys Pro
        220                 225                 230

cac acc tgc tgc tgc tat gtc aga tgt ccc tgc tgc cca gac aag tgc      772
His Thr Cys Cys Cys Tyr Val Arg Cys Pro Cys Cys Pro Asp Lys Cys
    235                 240                 245

tgt tgc cct gag gcc ctt tat gct gct ggc aaa gca gcc acc tca ggt      820
Cys Cys Pro Glu Ala Leu Tyr Ala Ala Gly Lys Ala Ala Thr Ser Gly
250                 255                 260                 265

gtg cca agc atc tat gcc ccc agc atc tat acc cac ctc tct cct gcc      868
Val Pro Ser Ile Tyr Ala Pro Ser Ile Tyr Thr His Leu Ser Pro Ala
                270                 275                 280

aag act ccg cca cct ccg cct gcc atg att ccc atg cgt cct ccc tat      916
Lys Thr Pro Pro Pro Pro Pro Ala Met Ile Pro Met Arg Pro Pro Tyr
            285                 290                 295

ggg tac cct gga gac ttt gac agg acc agc tca gtt ggt ggc cac agc      964
Gly Tyr Pro Gly Asp Phe Asp Arg Thr Ser Ser Val Gly Gly His Ser
        300                 305                 310

tcc cag gtg ccc ctg ctg cgt gaa gtg gat ggg agc gta tct tca gaa     1012
Ser Gln Val Pro Leu Leu Arg Glu Val Asp Gly Ser Val Ser Ser Glu
    315                 320                 325

gta cga agt ggc tac agg atc cag gct aac cag caa gat gac tcc atg     1060
Val Arg Ser Gly Tyr Arg Ile Gln Ala Asn Gln Gln Asp Asp Ser Met
330                 335                 340                 345

agg gtc cta tac tat atg gag aag gag cta gcc aac ttc gat cct tcc     1108
```

```
Arg Val Leu Tyr Tyr Met Glu Lys Glu Leu Ala Asn Phe Asp Pro Ser
                350                 355                 360

cgg cct ggc cct ccc aat ggc cga gtg gaa cgg gcc atg agt gaa gta     1156
Arg Pro Gly Pro Pro Asn Gly Arg Val Glu Arg Ala Met Ser Glu Val
            365                 370                 375

acc tcc ctc cat gaa gat gac tgg cga tct cgg cct tcc agg gct cct     1204
Thr Ser Leu His Glu Asp Asp Trp Arg Ser Arg Pro Ser Arg Ala Pro
        380                 385                 390

gcc ctc aca ccc atc agg gat gag gag tgg aat cgc cac tcc cct cgg     1252
Ala Leu Thr Pro Ile Arg Asp Glu Glu Trp Asn Arg His Ser Pro Arg
    395                 400                 405

agt ccc aga aca tgg gag cag gaa ccc ctt caa gaa cag cca agg ggt     1300
Ser Pro Arg Thr Trp Glu Gln Glu Pro Leu Gln Glu Gln Pro Arg Gly
410                 415                 420                 425

ggt tgg ggg tct ggg cgg cct cgg gcc cgc tct gtg gat gct cta gat     1348
Gly Trp Gly Ser Gly Arg Pro Arg Ala Arg Ser Val Asp Ala Leu Asp
                430                 435                 440

gac atc aac cgg cct ggc tcc act gaa tca gga agg tct tct ccc cca     1396
Asp Ile Asn Arg Pro Gly Ser Thr Glu Ser Gly Arg Ser Ser Pro Pro
            445                 450                 455

agt agt gga cgg aga ggg cgg gcc tat gca cct ccg aga agt cgc agc     1444
Ser Ser Gly Arg Arg Gly Arg Ala Tyr Ala Pro Pro Arg Ser Arg Ser
        460                 465                 470

cgg gat gac ctc tat gac ccc gac gat cct aga gac ttg cca cat tcc     1492
Arg Asp Asp Leu Tyr Asp Pro Asp Asp Pro Arg Asp Leu Pro His Ser
    475                 480                 485

cga gat ccc cac tat tat gat gat ttg agg tct agg gat cca cgt gct     1540
Arg Asp Pro His Tyr Tyr Asp Asp Leu Arg Ser Arg Asp Pro Arg Ala
490                 495                 500                 505

gac ccc aga tcc cgt cag cga tcc cac gat cct cgg gat gct ggc ttc     1588
Asp Pro Arg Ser Arg Gln Arg Ser His Asp Pro Arg Asp Ala Gly Phe
                510                 515                 520

agg tca cgg gac cct cag tat gat ggg cga ctc tta gaa gag gct tta     1636
Arg Ser Arg Asp Pro Gln Tyr Asp Gly Arg Leu Leu Glu Glu Ala Leu
            525                 530                 535

aag aaa aaa ggg gct ggg gag aga aga cgc gtt tac agg gag gaa gaa     1684
Lys Lys Lys Gly Ala Gly Glu Arg Arg Arg Val Tyr Arg Glu Glu Glu
        540                 545                 550

gaa gaa gaa gag gag ggc cac tat ccc cca gca cct ccg cct tac tct     1732
Glu Glu Glu Glu Glu Gly His Tyr Pro Pro Ala Pro Pro Pro Tyr Ser
    555                 560                 565

gag act gac tcg cag gcc tcg agg gag cgg agg atg aaa aag aat ttg     1780
Glu Thr Asp Ser Gln Ala Ser Arg Glu Arg Arg Met Lys Lys Asn Leu
```

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570                 575                 580                 585

gcc ctg agt cgg gaa agt tta gtc gtc tga tcccacgttt tgttatgtag       1830
Ala Leu Ser Arg Glu Ser Leu Val Val  *
                590

cttttatact tttttaattg gaatattgat gaaactcttc accaagccta ataaaa       1886
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<210> 14
<211> 1829
<212> DNA
<213> Mus musculus

<400> 14

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gcaccgtcgc tgctagacgg ccgcg atg gcg ccg gcg gcc agc gcg tgt gct       52
                              Met Ala Pro Ala Ala Ser Ala Cys Ala
                              1               5

ggg gcg cct ggc tcc cac ccg gcc acc acg atc ttc gtg tgt ctt ttt       100
Gly Ala Pro Gly Ser His Pro Ala Thr Thr Ile Phe Val Cys Leu Phe
10                  15                  20                  25

ctc atc att tac tgc cca gac cgt gcc agt gcc atc cag gtg acc gtg       148
Leu Ile Ile Tyr Cys Pro Asp Arg Ala Ser Ala Ile Gln Val Thr Val
                30                  35                  40

cct gac ccc tac cac gta gtg atc ctg ttc cag cca gtg aca cta cac       196
Pro Asp Pro Tyr His Val Val Ile Leu Phe Gln Pro Val Thr Leu His
            45                  50                  55

tgc acc tac cag atg agc aat acc ctc aca gcc cct atc gtg atc tgg       244
Cys Thr Tyr Gln Met Ser Asn Thr Leu Thr Ala Pro Ile Val Ile Trp
        60                  65                  70

aag tat aag tcg ttc tgt cgg gac cgt gtt gcc gac gcc ttc tcc cct       292
Lys Tyr Lys Ser Phe Cys Arg Asp Arg Val Ala Asp Ala Phe Ser Pro
    75                  80                  85

gcc agc gtg gac aac cag ctc aac gcc cag ctg gcg gct ggc aac ccc       340
Ala Ser Val Asp Asn Gln Leu Asn Ala Gln Leu Ala Ala Gly Asn Pro
90                  95                  100                 105

ggc tac aac ccc tat gtg gag tgc cag gac agc gta cgc act gtc agg       388
Gly Tyr Asn Pro Tyr Val Glu Cys Gln Asp Ser Val Arg Thr Val Arg
                110                 115                 120

gtg gtg gcc acc aaa cag ggc aat gct gtg acc ctg gga gac tac tac       436
Val Val Ala Thr Lys Gln Gly Asn Ala Val Thr Leu Gly Asp Tyr Tyr
            125                 130                 135

cag ggc agg aga atc acc atc aca gga aat gct ggc ctg acc ttc gag       484
Gln Gly Arg Arg Ile Thr Ile Thr Gly Asn Ala Gly Leu Thr Phe Glu
        140                 145                 150
```

```
cag acg gcc tgg gga gac agt gga gtg tat tac tgc tcc gtg gtc tca      532
Gln Thr Ala Trp Gly Asp Ser Gly Val Tyr Tyr Cys Ser Val Val Ser
    155                 160                 165

gcc caa gat ctg gat ggg aac aac gag gcg tac gca gag ctc att gtc      580
Ala Gln Asp Leu Asp Gly Asn Asn Glu Ala Tyr Ala Glu Leu Ile Val
170                 175                 180                 185

ctt gat tgg ctc ttt gtg gtc gtg gtc tgc ctg gca agc ctc ctc ttc      628
Leu Asp Trp Leu Phe Val Val Val Val Cys Leu Ala Ser Leu Leu Phe
                190                 195                 200

ttc ctc ctc ctg ggc atc tgc tgg tgc cag tgc tgt ccc cac acc tgc      676
Phe Leu Leu Leu Gly Ile Cys Trp Cys Gln Cys Cys Pro His Thr Cys
            205                 210                 215

tgc tgc tat gtc aga tgt ccc tgc tgc cca gac aag tgc tgt tgc cct      724
Cys Cys Tyr Val Arg Cys Pro Cys Cys Pro Asp Lys Cys Cys Cys Pro
        220                 225                 230

gag gcc ctt tat gct gct ggc aaa gca gcc acc tca ggt gtg cca agc      772
Glu Ala Leu Tyr Ala Ala Gly Lys Ala Ala Thr Ser Gly Val Pro Ser
    235                 240                 245

atc tat gcc ccc agc atc tat acc cac ctc tct cct gcc aag act ccg      820
Ile Tyr Ala Pro Ser Ile Tyr Thr His Leu Ser Pro Ala Lys Thr Pro
250                 255                 260                 265

cca cct ccg cct gcc atg att ccc atg cgt cct ccc tat ggg tac cct      868
Pro Pro Pro Pro Ala Met Ile Pro Met Arg Pro Pro Tyr Gly Tyr Pro
                270                 275                 280

gga gac ttt gac agg acc agc tca gtt ggt ggc cac agc tcc cag gtg      916
Gly Asp Phe Asp Arg Thr Ser Ser Val Gly Gly His Ser Ser Gln Val
            285                 290                 295

ccc ctg ctg cgt gaa gtg gat ggg agc gta tct tca gaa gta cga agt      964
Pro Leu Leu Arg Glu Val Asp Gly Ser Val Ser Ser Glu Val Arg Ser
        300                 305                 310

ggc tac agg atc cag gct aac cag caa gat gac tcc atg agg gtc cta     1012
Gly Tyr Arg Ile Gln Ala Asn Gln Gln Asp Asp Ser Met Arg Val Leu
    315                 320                 325

tac tat atg gag aag gag cta gcc aac ttc gat cct tcc cgg cct ggc     1060
Tyr Tyr Met Glu Lys Glu Leu Ala Asn Phe Asp Pro Ser Arg Pro Gly
330                 335                 340                 345

cct ccc aat ggc cga gtg gaa cgg gcc atg agt gaa gta acc tcc ctc     1108
Pro Pro Asn Gly Arg Val Glu Arg Ala Met Ser Glu Val Thr Ser Leu
                350                 355                 360

cat gaa gat gac tgg cga tct cgg cct tcc agg gct cct gcc ctc aca     1156
His Glu Asp Asp Trp Arg Ser Arg Pro Ser Arg Ala Pro Ala Leu Thr
            365                 370                 375

ccc atc agg gat gag gag tgg aat cgc cac tcc cct cgg agt ccc aga     1204
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Pro Ile Arg Asp Glu Glu Trp Asn Arg His Ser Pro Arg Ser Pro Arg
        380                 385                 390

aca tgg gag cag gaa ccc ctt caa gaa cag cca agg ggt ggt tgg ggg     1252
Thr Trp Glu Gln Glu Pro Leu Gln Glu Gln Pro Arg Gly Gly Trp Gly
    395                 400                 405

tct ggg cgg cct cgg gcc cgc tct gtg gat gct cta gat gac atc aac     1300
Ser Gly Arg Pro Arg Ala Arg Ser Val Asp Ala Leu Asp Asp Ile Asn
410                 415                 420                 425

cgg cct ggc tcc act gaa tca gga agg tct tct ccc cca agt agt gga     1348
Arg Pro Gly Ser Thr Glu Ser Gly Arg Ser Ser Pro Pro Ser Ser Gly
                430                 435                 440

cgg aga ggg cgg gcc tat gca cct ccg aga agt cgc agc cgg gat gac     1396
Arg Arg Gly Arg Ala Tyr Ala Pro Pro Arg Ser Arg Ser Arg Asp Asp
            445                 450                 455

ctc tat gac ccc gac gat cct aga gac ttg cca cat tcc cga gat ccc     1444
Leu Tyr Asp Pro Asp Asp Pro Arg Asp Leu Pro His Ser Arg Asp Pro
        460                 465                 470

cac tat tat gat gat ttg agg tct agg gat cca cgt gct gac ccc aga     1492
His Tyr Tyr Asp Asp Leu Arg Ser Arg Asp Pro Arg Ala Asp Pro Arg
    475                 480                 485

tcc cgt cag cga tcc cac gat cct cgg gat gct ggc ttc agg tca cgg     1540
Ser Arg Gln Arg Ser His Asp Pro Arg Asp Ala Gly Phe Arg Ser Arg
490                 495                 500                 505

gac cct cag tat gat ggg cga ctc tta gaa gag gct tta aag aaa aaa     1588
Asp Pro Gln Tyr Asp Gly Arg Leu Leu Glu Glu Ala Leu Lys Lys Lys
                510                 515                 520

ggg gct ggg gag aga aga cgc gtt tac agg gag gaa gaa gaa gaa gaa     1636
Gly Ala Gly Glu Arg Arg Arg Val Tyr Arg Glu Glu Glu Glu Glu Glu
            525                 530                 535

gag gag ggc cac tat ccc cca gca cct ccg cct tac tct gag act gac     1684
Glu Glu Gly His Tyr Pro Pro Ala Pro Pro Pro Tyr Ser Glu Thr Asp
        540                 545                 550

tcg cag gcc tcg agg gag cgg agg atg aaa aag aat ttg gcc ctg agt     1732
Ser Gln Ala Ser Arg Glu Arg Arg Met Lys Lys Asn Leu Ala Leu Ser
    555                 560                 565

cgg gaa agt tta gtc gtc tga tcccacgttt tgttatgtag cttttatact        1783
Arg Glu Ser Leu Val Val  *
570                 575

tttttaattg gaatattgat gaaactcttc accaagccta ataaaa                  1829
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<211> 1682

<212> DNA
<213> Mus musculus

<400> 15

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                            Met Ala Pro Ala Ala Ser Ala Cys Ala
                            1               5

ggg gcg cct ggc tcc cac ccg gcc acc acg atc ttc gtg tgt ctt ttt      100
Gly Ala Pro Gly Ser His Pro Ala Thr Thr Ile Phe Val Cys Leu Phe
10                  15                  20                  25

ctc atc att tac tgc cca gac cgt gcc agt gcc atc cag gtg acc gtg      148
Leu Ile Ile Tyr Cys Pro Asp Arg Ala Ser Ala Ile Gln Val Thr Val
                30                  35                  40

cct gac ccc tac cac gta gtg atc ctg ttc cag cca gtg aca cta cac      196
Pro Asp Pro Tyr His Val Val Ile Leu Phe Gln Pro Val Thr Leu His
            45                  50                  55

tgc acc tac cag atg agc aat acc ctc aca gcc cct atc gtg atc tgg      244
Cys Thr Tyr Gln Met Ser Asn Thr Leu Thr Ala Pro Ile Val Ile Trp
        60                  65                  70

aag tat aag tcg ttc tgt cgg gac cgt gtt gcc gac gcc ttc tcc cct      292
Lys Tyr Lys Ser Phe Cys Arg Asp Arg Val Ala Asp Ala Phe Ser Pro
    75                  80                  85

gcc agc gtg gac aac cag ctc aac gcc cag ctg gcg gct ggc aac ccc      340
Ala Ser Val Asp Asn Gln Leu Asn Ala Gln Leu Ala Ala Gly Asn Pro
90                  95                  100                 105

ggc tac aac ccc tat gtg gag tgc cag gac agc gta cgc act gtc agg      388
Gly Tyr Asn Pro Tyr Val Glu Cys Gln Asp Ser Val Arg Thr Val Arg
                110                 115                 120

gtg gtg gcc acc aaa cag ggc aat gct gtg acc ctg gga gac tac tac      436
Val Val Ala Thr Lys Gln Gly Asn Ala Val Thr Leu Gly Asp Tyr Tyr
            125                 130                 135

cag ggc agg aga atc acc atc aca gga aat gct ggc ctg acc ttc gag      484
Gln Gly Arg Arg Ile Thr Ile Thr Gly Asn Ala Gly Leu Thr Phe Glu
        140                 145                 150

cag acg gcc tgg gga gac agt gga gtg tat tac tgc tcc gtg gtc tca      532
Gln Thr Ala Trp Gly Asp Ser Gly Val Tyr Tyr Cys Ser Val Val Ser
    155                 160                 165

gcc caa gat ctg gat ggg aac aac gag gcg tac gca gag ctc att gtc      580
Ala Gln Asp Leu Asp Gly Asn Asn Glu Ala Tyr Ala Glu Leu Ile Val
170                 175                 180                 185

ctt gtt tat gct gct ggc aaa gca gcc acc tca ggt gtg cca agc atc      628
Leu Val Tyr Ala Ala Gly Lys Ala Ala Thr Ser Gly Val Pro Ser Ile
                190                 195                 200
```

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tat gcc ccc agc atc tat acc cac ctc tct cct gcc aag act ccg cca      676
Tyr Ala Pro Ser Ile Tyr Thr His Leu Ser Pro Ala Lys Thr Pro Pro
            205                 210                 215

cct ccg cct gcc atg att ccc atg cgt cct ccc tat ggg tac cct gga      724
Pro Pro Pro Ala Met Ile Pro Met Arg Pro Pro Tyr Gly Tyr Pro Gly
        220                 225                 230

gac ttt gac agg acc agc tca gtt ggt ggc cac agc tcc cag gtg ccc      772
Asp Phe Asp Arg Thr Ser Ser Val Gly Gly His Ser Ser Gln Val Pro
    235                 240                 245

ctg ctg cgt gaa gtg gat ggg agc gta tct tca gaa gta cga agt ggc      820
Leu Leu Arg Glu Val Asp Gly Ser Val Ser Ser Glu Val Arg Ser Gly
250                 255                 260                 265

tac agg atc cag gct aac cag caa gat gac tcc atg agg gtc cta tac      868
Tyr Arg Ile Gln Ala Asn Gln Gln Asp Asp Ser Met Arg Val Leu Tyr
                270                 275                 280

tat atg gag aag gag cta gcc aac ttc gat cct tcc cgg cct ggc cct      916
Tyr Met Glu Lys Glu Leu Ala Asn Phe Asp Pro Ser Arg Pro Gly Pro
            285                 290                 295

ccc aat ggc cga gtg gaa cgg gcc atg agt gaa gta acc tcc ctc cat      964
Pro Asn Gly Arg Val Glu Arg Ala Met Ser Glu Val Thr Ser Leu His
        300                 305                 310

gaa gat gac tgg cga tct cgg cct tcc agg gct cct gcc ctc aca ccc     1012
Glu Asp Asp Trp Arg Ser Arg Pro Ser Arg Ala Pro Ala Leu Thr Pro
    315                 320                 325

atc agg gat gag gag tgg aat cgc cac tcc cct cgg agt ccc aga aca     1060
Ile Arg Asp Glu Glu Trp Asn Arg His Ser Pro Arg Ser Pro Arg Thr
330                 335                 340                 345

tgg gag cag gaa ccc ctt caa gaa cag cca agg ggt ggt tgg ggg tct     1108
Trp Glu Gln Glu Pro Leu Gln Glu Gln Pro Arg Gly Gly Trp Gly Ser
                350                 355                 360

ggg cgg cct cgg gcc cgc tct gtg gat gct cta gat gac atc aac cgg     1156
Gly Arg Pro Arg Ala Arg Ser Val Asp Ala Leu Asp Asp Ile Asn Arg
            365                 370                 375

cct ggc tcc act gaa tca gga agg tct tct ccc cca agt agt gga cgg     1204
Pro Gly Ser Thr Glu Ser Gly Arg Ser Ser Pro Pro Ser Ser Gly Arg
        380                 385                 390

aga ggg cgg gcc tat gca cct ccg aga agt cgc agc cgg gat gac ctc     1252
Arg Gly Arg Ala Tyr Ala Pro Pro Arg Ser Arg Ser Arg Asp Asp Leu
    395                 400                 405

tat gac ccc gac gat cct aga gac ttg cca cat tcc cga gat ccc cac     1300
Tyr Asp Pro Asp Asp Pro Arg Asp Leu Pro His Ser Arg Asp Pro His
410                 415                 420                 425

tat tat gat gat ttg agg tct agg gat cca cgt gct gac ccc aga tcc     1348
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Tyr Tyr Asp Asp Leu Arg Ser Arg Asp Pro Arg Ala Asp Pro Arg Ser
                430                 435                 440

cgt cag cga tcc cac gat cct cgg gat gct ggc ttc agg tca cgg gac     1396
Arg Gln Arg Ser His Asp Pro Arg Asp Ala Gly Phe Arg Ser Arg Asp
            445                 450                 455

cct cag tat gat ggg cga ctc tta gaa gag gct tta aag aaa aaa ggg     1444
Pro Gln Tyr Asp Gly Arg Leu Leu Glu Glu Ala Leu Lys Lys Lys Gly
        460                 465                 470

gct ggg gag aga aga cgc gtt tac agg gag gaa gaa gaa gaa gaa gag     1492
Ala Gly Glu Arg Arg Arg Val Tyr Arg Glu Glu Glu Glu Glu Glu Glu
    475                 480                 485

gag ggc cac tat ccc cca gca cct ccg cct tac tct gag act gac tcg     1540
Glu Gly His Tyr Pro Pro Ala Pro Pro Pro Tyr Ser Glu Thr Asp Ser
490                 495                 500                 505

cag gcc tcg agg gag cgg agg atg aaa aag aat ttg gcc ctg agt cgg     1588
Gln Ala Ser Arg Glu Arg Arg Met Lys Lys Asn Leu Ala Leu Ser Arg
                510                 515                 520

gaa agt tta gtc gtc tga tcccacgttt tgttatgtag cttttatact            1636
Glu Ser Leu Val Val  *
            525

tttttaattg gaatattgat gaaactcttc accaagccta ataaaa                  1682
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<210> 16
<211> 594
<212> PRT
<213> Mus musculus

<400> 16

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Ala Thr Thr Ile Phe Val Cys Leu Phe Leu Ile Ile Tyr Cys Pro Asp
            20                  25                  30

Arg Ala Ser Ala Ile Gln Val Thr Val Pro Asp Pro Tyr His Val Val
        35                  40                  45

Ile Leu Phe Gln Pro Val Thr Leu His Cys Thr Tyr Gln Met Ser Asn
    50                  55                  60

Thr Leu Thr Ala Pro Ile Val Ile Trp Lys Tyr Lys Ser Phe Cys Arg
65                  70                  75                  80

Asp Arg Val Ala Asp Ala Phe Ser Pro Ala Ser Val Asp Asn Gln Leu
                85                  90                  95

Asn Ala Gln Leu Ala Ala Gly Asn Pro Gly Tyr Asn Pro Tyr Val Glu
```

100 105 110

Cys Gln Asp Ser Val Arg Thr Val Arg Val Val Ala Thr Lys Gln Gly
115 120 125

Asn Ala Val Thr Leu Gly Asp Tyr Tyr Gln Gly Arg Arg Ile Thr Ile
130 135 140

Thr Gly Asn Ala Gly Leu Thr Phe Glu Gln Thr Ala Trp Gly Asp Ser
145 150 155 160

Gly Val Tyr Tyr Cys Ser Val Val Ser Ala Gln Asp Leu Asp Gly Asn
165 170 175

Asn Glu Ala Tyr Ala Glu Leu Ile Val Leu Gly Arg Thr Ser Glu Ala
180 185 190

Pro Glu Leu Leu Pro Gly Phe Arg Ala Gly Pro Leu Glu Asp Trp Leu
195 200 205

Phe Val Val Val Val Cys Leu Ala Ser Leu Leu Phe Phe Leu Leu Leu
210 215 220

Gly Ile Cys Trp Cys Gln Cys Cys Pro His Thr Cys Cys Cys Tyr Val
225 230 235 240

Arg Cys Pro Cys Cys Pro Asp Lys Cys Cys Cys Pro Glu Ala Leu Tyr
245 250 255

Ala Ala Gly Lys Ala Ala Thr Ser Gly Val Pro Ser Ile Tyr Ala Pro
260 265 270

Ser Ile Tyr Thr His Leu Ser Pro Ala Lys Thr Pro Pro Pro Pro Pro
275 280 285

Ala Met Ile Pro Met Arg Pro Pro Tyr Gly Tyr Pro Gly Asp Phe Asp
290 295 300

Arg Thr Ser Ser Val Gly Gly His Ser Ser Gln Val Pro Leu Leu Arg
305 310 315 320

Glu Val Asp Gly Ser Val Ser Ser Glu Val Arg Ser Gly Tyr Arg Ile
325 330 335

Gln Ala Asn Gln Gln Asp Asp Ser Met Arg Val Leu Tyr Tyr Met Glu
340 345 350

Lys Glu Leu Ala Asn Phe Asp Pro Ser Arg Pro Gly Pro Pro Asn Gly
355 360 365

Arg Val Glu Arg Ala Met Ser Glu Val Thr Ser Leu His Glu Asp Asp
370 375 380

Trp Arg Ser Arg Pro Ser Arg Ala Pro Ala Leu Thr Pro Ile Arg Asp
385 390 395 400

Glu Glu Trp Asn Arg His Ser Pro Arg Ser Pro Arg Thr Trp Glu Gln

405 410 415

Glu Pro Leu Gln Glu Gln Pro Arg Gly Gly Trp Gly Ser Gly Arg Pro
420 425 430

Arg Ala Arg Ser Val Asp Ala Leu Asp Asp Ile Asn Arg Pro Gly Ser
435 440 445

Thr Glu Ser Gly Arg Ser Ser Pro Pro Ser Ser Gly Arg Arg Gly Arg
450 455 460

Ala Tyr Ala Pro Pro Arg Ser Arg Ser Arg Asp Asp Leu Tyr Asp Pro
465 470 475 480

Asp Asp Pro Arg Asp Leu Pro His Ser Arg Asp Pro His Tyr Tyr Asp
485 490 495

Asp Leu Arg Ser Arg Asp Pro Arg Ala Asp Pro Arg Ser Arg Gln Arg
500 505 510

Ser His Asp Pro Arg Asp Ala Gly Phe Arg Ser Arg Asp Pro Gln Tyr
515 520 525

Asp Gly Arg Leu Leu Glu Glu Ala Leu Lys Lys Lys Gly Ala Gly Glu
530 535 540

Arg Arg Arg Val Tyr Arg Glu Glu Glu Glu Glu Glu Glu Glu Gly His
545 550 555 560

Tyr Pro Pro Ala Pro Pro Pro Tyr Ser Glu Thr Asp Ser Gln Ala Ser
565 570 575

Arg Glu Arg Arg Met Lys Lys Asn Leu Ala Leu Ser Arg Glu Ser Leu
580 585 590

Val Val

<210> 17
<211> 575
<212> PRT
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Ala Thr Thr Ile Phe Val Cys Leu Phe Leu Ile Ile Tyr Cys Pro Asp
20 25 30

Arg Ala Ser Ala Ile Gln Val Thr Val Pro Asp Pro Tyr His Val Val
35 40 45

Ile Leu Phe Gln Pro Val Thr Leu His Cys Thr Tyr Gln Met Ser Asn
50 55 60

```
Thr Leu Thr Ala Pro Ile Val Ile Trp Lys Tyr Lys Ser Phe Cys Arg
65                  70                  75                  80

Asp Arg Val Ala Asp Ala Phe Ser Pro Ala Ser Val Asp Asn Gln Leu
                85                  90                  95

Asn Ala Gln Leu Ala Ala Gly Asn Pro Gly Tyr Asn Pro Tyr Val Glu
            100                 105                 110

Cys Gln Asp Ser Val Arg Thr Val Arg Val Val Ala Thr Lys Gln Gly
        115                 120                 125

Asn Ala Val Thr Leu Gly Asp Tyr Tyr Gln Gly Arg Arg Ile Thr Ile
    130                 135                 140

Thr Gly Asn Ala Gly Leu Thr Phe Glu Gln Thr Ala Trp Gly Asp Ser
145                 150                 155                 160

Gly Val Tyr Tyr Cys Ser Val Val Ser Ala Gln Asp Leu Asp Gly Asn
                165                 170                 175

Asn Glu Ala Tyr Ala Glu Leu Ile Val Leu Asp Trp Leu Phe Val Val
            180                 185                 190

Val Val Cys Leu Ala Ser Leu Leu Phe Phe Leu Leu Leu Gly Ile Cys
        195                 200                 205

Trp Cys Gln Cys Cys Pro His Thr Cys Cys Cys Tyr Val Arg Cys Pro
    210                 215                 220

Cys Cys Pro Asp Lys Cys Cys Cys Pro Glu Ala Leu Tyr Ala Ala Gly
225                 230                 235                 240

Lys Ala Ala Thr Ser Gly Val Pro Ser Ile Tyr Ala Pro Ser Ile Tyr
                245                 250                 255

Thr His Leu Ser Pro Ala Lys Thr Pro Pro Pro Pro Pro Ala Met Ile
            260                 265                 270

Pro Met Arg Pro Pro Tyr Gly Tyr Pro Gly Asp Phe Asp Arg Thr Ser
        275                 280                 285

Ser Val Gly Gly His Ser Ser Gln Val Pro Leu Leu Arg Glu Val Asp
    290                 295                 300

Gly Ser Val Ser Ser Glu Val Arg Ser Gly Tyr Arg Ile Gln Ala Asn
305                 310                 315                 320

Gln Gln Asp Asp Ser Met Arg Val Leu Tyr Tyr Met Glu Lys Glu Leu
                325                 330                 335

Ala Asn Phe Asp Pro Ser Arg Pro Gly Pro Pro Asn Gly Arg Val Glu
            340                 345                 350

Arg Ala Met Ser Glu Val Thr Ser Leu His Glu Asp Asp Trp Arg Ser
        355                 360                 365
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Arg Pro Ser Arg Ala Pro Ala Leu Thr Pro Ile Arg Asp Glu Glu Trp
    370                 375                 380

Asn Arg His Ser Pro Arg Ser Pro Arg Thr Trp Glu Gln Glu Pro Leu
385                 390                 395                 400

Gln Glu Gln Pro Arg Gly Gly Trp Gly Ser Gly Arg Pro Arg Ala Arg
                405                 410                 415

Ser Val Asp Ala Leu Asp Asp Ile Asn Arg Pro Gly Ser Thr Glu Ser
            420                 425                 430

Gly Arg Ser Ser Pro Pro Ser Ser Gly Arg Arg Gly Arg Ala Tyr Ala
        435                 440                 445

Pro Pro Arg Ser Arg Ser Arg Asp Asp Leu Tyr Asp Pro Asp Asp Pro
    450                 455                 460

Arg Asp Leu Pro His Ser Arg Asp Pro His Tyr Tyr Asp Asp Leu Arg
465                 470                 475                 480

Ser Arg Asp Pro Arg Ala Asp Pro Arg Ser Arg Gln Arg Ser His Asp
                485                 490                 495

Pro Arg Asp Ala Gly Phe Arg Ser Arg Asp Pro Gln Tyr Asp Gly Arg
            500                 505                 510

Leu Leu Glu Glu Ala Leu Lys Lys Lys Gly Ala Gly Glu Arg Arg Arg
        515                 520                 525

Val Tyr Arg Glu Glu Glu Glu Glu Glu Glu Glu Gly His Tyr Pro Pro
    530                 535                 540

Ala Pro Pro Pro Tyr Ser Glu Thr Asp Ser Gln Ala Ser Arg Glu Arg
545                 550                 555                 560

Arg Met Lys Lys Asn Leu Ala Leu Ser Arg Glu Ser Leu Val Val
                565                 570                 575
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<211> 526
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<213> Mus musculus

<400> 18

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            20                  25                  30

Arg Ala Ser Ala Ile Gln Val Thr Val Pro Asp Pro Tyr His Val Val
        35                  40                  45
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Ile Leu Phe Gln Pro Val Thr Leu His Cys Thr Tyr Gln Met Ser Asn
50 55 60

Thr Leu Thr Ala Pro Ile Val Ile Trp Lys Tyr Lys Ser Phe Cys Arg
65 70 75 80

Asp Arg Val Ala Asp Ala Phe Ser Pro Ala Ser Val Asp Asn Gln Leu
85 90 95

Asn Ala Gln Leu Ala Ala Gly Asn Pro Gly Tyr Asn Pro Tyr Val Glu
100 105 110

Cys Gln Asp Ser Val Arg Thr Val Arg Val Val Ala Thr Lys Gln Gly
115 120 125

Asn Ala Val Thr Leu Gly Asp Tyr Tyr Gln Gly Arg Arg Ile Thr Ile
130 135 140

Thr Gly Asn Ala Gly Leu Thr Phe Glu Gln Thr Ala Trp Gly Asp Ser
145 150 155 160

Gly Val Tyr Tyr Cys Ser Val Val Ser Ala Gln Asp Leu Asp Gly Asn
165 170 175

Asn Glu Ala Tyr Ala Glu Leu Ile Val Leu Val Tyr Ala Ala Gly Lys
180 185 190

Ala Ala Thr Ser Gly Val Pro Ser Ile Tyr Ala Pro Ser Ile Tyr Thr
195 200 205

His Leu Ser Pro Ala Lys Thr Pro Pro Pro Pro Pro Ala Met Ile Pro
210 215 220

Met Arg Pro Pro Tyr Gly Tyr Pro Gly Asp Phe Asp Arg Thr Ser Ser
225 230 235 240

Val Gly Gly His Ser Ser Gln Val Pro Leu Leu Arg Glu Val Asp Gly
245 250 255

Ser Val Ser Ser Glu Val Arg Ser Gly Tyr Arg Ile Gln Ala Asn Gln
260 265 270

Gln Asp Asp Ser Met Arg Val Leu Tyr Tyr Met Glu Lys Glu Leu Ala
275 280 285

Asn Phe Asp Pro Ser Arg Pro Gly Pro Pro Asn Gly Arg Val Glu Arg
290 295 300

Ala Met Ser Glu Val Thr Ser Leu His Glu Asp Asp Trp Arg Ser Arg
305 310 315 320

Pro Ser Arg Ala Pro Ala Leu Thr Pro Ile Arg Asp Glu Glu Trp Asn
325 330 335

Arg His Ser Pro Arg Ser Pro Arg Thr Trp Glu Gln Glu Pro Leu Gln
340 345 350

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Glu Gln Pro Arg Gly Gly Trp Gly Ser Gly Arg Pro Arg Ala Arg Ser
        355                 360                 365

Val Asp Ala Leu Asp Asp Ile Asn Arg Pro Gly Ser Thr Glu Ser Gly
    370                 375                 380

Arg Ser Ser Pro Pro Ser Ser Gly Arg Arg Gly Arg Ala Tyr Ala Pro
385                 390                 395                 400

Pro Arg Ser Arg Ser Arg Asp Asp Leu Tyr Asp Pro Asp Asp Pro Arg
                405                 410                 415

Asp Leu Pro His Ser Arg Asp Pro His Tyr Tyr Asp Asp Leu Arg Ser
            420                 425                 430

Arg Asp Pro Arg Ala Asp Pro Arg Ser Arg Gln Arg Ser His Asp Pro
        435                 440                 445

Arg Asp Ala Gly Phe Arg Ser Arg Asp Pro Gln Tyr Asp Gly Arg Leu
    450                 455                 460

Leu Glu Glu Ala Leu Lys Lys Lys Gly Ala Gly Glu Arg Arg Arg Val
465                 470                 475                 480

Tyr Arg Glu Glu Glu Glu Glu Glu Glu Glu Gly His Tyr Pro Pro Ala
                485                 490                 495

Pro Pro Pro Tyr Ser Glu Thr Asp Ser Gln Ala Ser Arg Glu Arg Arg
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Met Lys Lys Asn Leu Ala Leu Ser Arg Glu Ser Leu Val Val
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<221> Misc_Feature
<222> 19956..19958
<223> Potential variant splicing site AAG

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